



UNITED STATES DEPARTMENT OF THE INTERIOR

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Park and Recreation Structures




Part I—ADMINISTRATION
AND BASIC SERVICE FACILITIES

NATIONAL PARK SERVICE • 1938

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Part I

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Part I—ADMINISTRATION
AND BASIC SERVICE FACILITIES

BY Albert H. Good, *Architectural Consultant*

National Park Service



UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

1938



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HAROLD L. ICKES, *Secretary*

NATIONAL PARK SERVICE

ARNO B. CAMMERER, *Director*



CIVILIAN CONSERVATION CORPS

ROBERT FECHNER, *Director*

ADVISORY COUNCIL

GEORGE P. TYNER, *Brigadier General*

Representing the Secretary of War

CONRAD L. WIRTH, *Assistant Director, National Park Service*

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FRED MORRELL, *Assistant Chief Forester, United States Forest Service*

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W. FRANK PERSONS, *Director, United States Employment Service*

Representing the Secretary of Labor








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FOREWORD

IN ANY AREA in which the preservation of the beauty of Nature is a primary purpose, every proposed modification of the natural landscape, whether it be by construction of a road or erection of a shelter, deserves to be most thoughtfully considered. A basic objective of those who are entrusted with development of such areas for the human uses for which they are established is, it seems to me, to hold these modifications to a minimum and so to design them that, besides being attractive to look upon, they appear to belong to and be a part of their settings.

For some years the National Park Service, State park authorities, and other agencies which administer natural park areas have been attaining a constantly improved technique of design and execution for the structures that are required for safe, convenient, and beneficial public use of these parks. Progress in this field has been especially marked since the inception of the Emergency Conservation Work program, with its steadily increasing and sound emphasis on development of recreational facilities, particularly in State parks. Stimulated by the problems this work has presented, competent architects have produced designs—and seen them converted into reality—that denote a real advance in this somewhat specialized field.

Herein are presented some of the successful natural park structures, a group by no means limited to those produced during the past four years or to those designed and erected under National Park Service supervision. Since tastes differ and since varying experience produces varying conclusions, it is hardly to be expected that there will be unanimous agreement as to the wisdom of including certain of the selected designs, or that no one will take issue with any of the points raised in the discussions that form an important part of the work. Selection and discussion alike, however, are the result of most careful and conscientious study.

This book is certain, I believe, to prove of exceptional value to all those who are concerned with the design of park and recreation structures. It should be immensely helpful in stimulating still further improvement in this special field of design. The interest manifested in it in advance of publication indicates a widespread conviction that there is a real place and a real need for such a compilation.

ARNO B. CAMMERER, *Director, National Park Service.*

ACKNOWLEDGMENT

»» WITH THE APPEARANCE of the National Park Service's publication "Park Structures and Facilities" in November 1935, demand for it soon indicated that another issue must follow. The earlier printing may be said to have been a doubly limited edition—limited in number to such an extent that requests for copies far outran the supply, and limited in scope because of its speedy production, made necessary by a pressing need in connection with the Emergency Conservation Work under way in national parks and monuments, State parks, and other natural park areas throughout the country. Moreover, the two years that have elapsed since the compilation of the original material have witnessed the completion of many park structures and facilities of enlarging variety and unusual merit. It is felt that these, in fact more of them than space permits, definitely deserve recording along with selections from the earlier book. With the intent of bringing the record up to date on a more comprehensive scale and under conditions imposing the least restrictions on its general availability, this revised and enlarged compilation is undertaken.

Civilian Conservation Corps funds sufficient to defray the cost of publication were allotted by Robert Fechner, Director of that popular and successful undertaking. Director Fechner's sympathetic understanding of the major problems of park and recreation development continues to be immensely helpful and encouraging to those whose privilege it is to be associated with him in the work.

In connection with much of the material submitted, there was regrettable lack of information to make possible rendering due credit to the many able planning groups and individuals, earnest artisans and mechanics, responsible for the structures herein illustrated. For this reason, it has seemed fairest to all concerned to credit the material, with few exceptions, to locations rather than to individuals or groups. A kind of equalization of injustice to all has seemed preferable to a discriminatory injustice to some. The practice has been pursued without intent to traffic in the anonymity of others in order to infer credit to the National Park Service. Such an interpretation would be unfortunate and unfair. Regardless of their source, it has been sought to include structures suitable to natural parks. Many, including some of the most notable accomplishments herein shown, were created entirely independent of Service participation. For the distinction these bring to this publication, and for the privilege of including them, the Service is most grateful.

The wonderful success of the first edition of this book two years ago may be attributed to the personal and untiring efforts of Albert H. Good, and, therefore, he was naturally selected as the author for this edition. Those who will have occasion to use these books will appreciate and realize the great amount of study and thought that he has put into his work. We are deeply indebted to him, and we acknowledge his high professional attainments.

Although the final selection of material and the writing of the general discussions and comments have devolved upon one individual, no publication could have been possible without the generous assistance of innumerable associates in the Service who submitted needed material with a tireless helpfulness which is the essential spirit of the National Park Service organization. To these, and to friends of the Service whose interest in park and recreation development has led them to hearty cooperation in this undertaking, we extend appreciative thanks.

CONRAD L. WIRTH, *Assistant Director, National Park Service.*

APOLOGIA

»»A CHERISHED DICTUM of the many friends of the natural park concept through its formative years has been that structures must be regarded as intrusions in areas set aside to be conserved in their natural state. This unequivocal pronouncement indeed nourished the budding park idea, and has been a favorable and protective influence in its flowering. General acceptance of the principle has so held in check structural desecration of parks that few persons have been moved to brand the statement a half truth, standing very much in need of qualifying amendment to suit today's many-sided park concept. To do so will doubtless be received as a minority report, if not as shameless heresy; nevertheless, the case will be here argued.

Time was when only areas of superb scenery, outstanding scientific interest, or major historical importance held interest for the sponsors of natural parks. There was proper concentration on saving the outstanding natural wonders first, and it was probably along with the acquisition of the first superlative areas that structures in parks came to be frowned on as alien and intrusive. Recall that among the sites early dedicated to the idea were the Valley of Yosemite and the Canyons of the Yellowstone and the Colorado! Quick resentment of invasion of such scenic splendor is altogether understandable. Here man must first have felt that his best-intentioned structural efforts had reached an all-time high for incongruity, that structures, however well designed, do not contribute to the beauty, but only to the use, of a park of conspicuous natural distinction. When he concluded that only the most persistent demands for a facility should trap him into playing the jester, he established a principle that remains paramount today for such areas—to build only structures which are undeniably essential, and to know he is not equipped to embellish, but only to mar, Nature's better canvases. Now and forever,

the degree of his success within such areas will be measurable by the yardstick of his self-restraint.

Outstanding, inspiring, breath-taking superlatives in Nature exist by reason of the fact that some comparatively few acres stand out in sharp contrast with hundreds of thousands of relatively unexciting others. Park areas of transcendent quality are often too remote from population centers to be within reach of any great number of citizens. Broad sections of the land, densely populated, are without scenically superb endowment by Nature.

Sensing these facts, the natural park movement could not long remain preoccupied with top-flight Nature alone. The natural park idea was destined for a truly liberal evolution, influenced by such weighing factors as distribution of population, development of the automobile, increase of leisure time, and tardy realization that important among conservational responsibilities of parks was the human crop.

The fact that superlative Nature was beyond gunshot of concentrations of five or ten million people happily did not result in these populations being denied the recreational and inspirational benefits that subsuperlative Nature can provide. It was wisely reasoned that there is more nourishment in half a loaf in the larder than a full loaf beyond the horizon—or no loaf at all. Many park preserves have come into being which cannot boast the highest peak or deepest canyon, bluest lake or tallest tree, but do succeed in delivering, f. o. b. metropolitan centers, hills and valleys to pass for superlative in contrast with tenement walls, and swimming, sun, and shade to seem heaven-sent to youth whose wading pools have been rain-flooded gutters of drab city streets.

Tracts, admittedly limited or even lacking in natural interest, but highly desirable by virtue of location, need, and every other influencing factor, bloom attractively on every side to the benefit of

millions. It is inexact to term these, in the accepted denotation of the word, parks—they are reserves for recreation. More often than not their natural background is only that contrast-affording Nature which makes other areas superlative. Does such a background warrant the “no dogs allowed” attitude toward structures so fully justified where Nature plays the principal role? Does it not rather invite structures to trespass to a fulfilment of recreational potentialities and needs, and to bolster up a commonplace or ravaged Nature? It seems reasonable to assert that in just the degree natural beauty is lacking structures may legitimately seek to bring beauty to purpose.

Those who have been called on to plan the areas where structural trespass is not a justifiable taboo have sought to do so with a certain grace. We realize that the undertaking is legitimized or not by harmony or the lack of it. We are learning that harmony is more likely to result from a use of native materials. We show signs of doubting the propriety of introducing boulders into settings where Nature failed to provide them, or of incorporating heavy alien timbers into structures in treeless areas. We sometimes even experience a faltering of faith in the precision materials produced by our machines, and so evidence an understanding of relative fitness.

As we have vaguely sensed these things, we incline to a humble respect for the past. We become aware of the unvoiced claims of those long-gone races and earlier generations that tracked the wilderness, plains, or desert before us. In fitting tribute we seek to grace our park structures by adaptation of their traditions and practices as we come to understand them.

Thus we are influenced by the early settlers, English and Dutch, along the Atlantic seaboard; something of Old France lingers along the trail of Pere Marquette and the fur traders. Reaching up from New Orleans, Florida, and Old Mexico, Spanish traditions and customs rightfully flourish. Over the covered wagon routes the ring of the pioneer's axe is echoed in the efforts of today. The habits and primitive ingenuity of the American Indian persist and find varied expression over wide areas. Interpreted with intelligence, these influences promise an eventual park and recreation

architecture, which, outside certain sacrosanct areas, need not cringe before a blanket indictment for “unlawful entry.”

CONFRONTED WITH THE PRIVILEGE of presenting representative structures and facilities that have found place in parks, from the truly natural park to the recreational reserve, many decisions have been necessary in determining a proper approach. Should such a compilation attribute to the reader no fundamental knowledge of the subject, and become a park primer treating the subject “from the ground up” literally and figuratively? Should it seek to embrace in all detail every subject of possible interest to the park-minded, assuming in the reader a consuming appetite for knowledge—in bulk? Need it concern itself with formulae, diagrams, rules of thumb and rules of fact? Should it become a repository of material, technical and aesthetic, elementary and advanced, and already available from scattered sources?

It is the conclusion that the call is for none of these but only for a comprehensive presentation of park structures and facilities in which principles held in esteem by park planners, landscape designers, engineers, and architects have been happily joined in adequate provision for man's needs with a minimum sacrifice of the natural values present. By avoiding any tendency to be a primer, an encyclopedia, or a handbook of the subject, it is hoped to focus more directly on the current trend in park buildings. It is believed that by making the subjects herein widely available for comparative study, the influence engendered by each will merge into a forceful composite to the advancement of park technique.

The examples shown are considered appropriate to natural parks, as distinguished from naturalistic or formalized city parks. These latter are considered to be a field in themselves, very different in premise, and better treated independently of the natural park areas as exemplified by our national, many of our State, and some of our county and metropolitan parks. It has been elected to present examples of structures, regardless of location, if in their expression they promise to be quite at home in little-modified environment.

For more convenient reference it has seemed advisable to arrange items of closely related purpose

into three groups representative of certain broad functions. Hence, Part I is titled Administration and Basic Service Facilities, and embraces structures identified with boundary, access and circulation, supervision and maintenance, and those basic services in park areas which can be termed the counterparts of public utilities in urban communities.

The scope of Part II—Recreational and Cultural Facilities—requires no detailed exposition. The structures treated therein are those in facilitation of picnicking, active recreation, and cultural pursuits representative of the day use of a park area.

The title of Part III—Overnight and Organized Camp Facilities—is self-explanatory. Discussed and illustrated therein is the range of individual overnight accommodations and dependencies, from tent campsite to hotel, together with the full complement of structures that make up an organized camp. The latter will, of course, repeat some of the previously explored classifications but will focus on examples adapted physically to the specific requirements of group camping, and scaled economically to the social aspect of this field of public recreation.

THE SCOPE OF MATERIAL has suggested three varieties of presentation. There are minor facilities, developed to a pleasing expression within certain utilitarian or technical limitations, which might with propriety be duplicated in many localities. In such instances, it has been the endeavor to provide information in such detail that adaptation approaching duplication is possible. This is by no means so much an invitation to indiscriminate copying as a suggestion that little objects once well done are often a more satisfactory solution to a recurring problem than a new creation claiming the sole and debatable distinction of being different.

Another group embraces subjects eminently suited to particular locations, but promising little success with outright transplanting into another environment. Such subjects are shown in limited detail. They are included simply in the hope that the charm and fitness of the subjects in their specific settings and expressions may offer inspiration while flying a warning against too literal translation. It is intended to offer the spirit but not the letter of such examples. Only reliance on the best professional advice can reasonably insure against struc-

tures appropriate in one locality becoming caricatures elsewhere. Only consummate skill and rare good judgment in adaptation can avoid a half-caste development, the very counterfeit exactness of which is pathetic testimony of the bar sinister.

The third presentation is of successful accomplishments of highly individual problems, the factors fixing which are unlikely ever to be approximated in another problem. These are included in recognition of worthy attainment, to inspire in those to whom the more complex park design problems may fall in the future a high purpose to approach them with equally refreshing individuality, ingenuity, and forthrightness. Plagiarism, subtle or obvious, in structures within this category is a crowning stupidity.

It is felt that inclusion of examples of extraordinarily complex structures would bring little to the practical usefulness of this collection. The more involved and extensive the structure, the more evident that it is the result of an altogether unique interplay of needs, topography, traditions, materials, and many other factors. Beyond the borders of utter simplicity lie innumerable possible patterns, complex in varying degree. Duplication of any one such pattern is without rhyme; approximation of it, without reason. Readers will note the absence of many well-known and admired large-scale buildings of incontestable park character. These are held to be sanctified in a sense by their very success, and are omitted to avoid possible inference that they are imitable material.

The placing of some of the combination structures herein presented, within the chapter classifications established, may stand in need of explanation and defense. Such combination buildings are so numerous that to create a separate classification for them would result in a loosely related group, bulking to an unreasonable relationship with other classifications. For this reason a so-called combination structure is allocated to the heading which seems best to define the apparently dominant use of the building.

IN THE SELECTION OF MATERIAL one issue, long an inviting subject for debate, arose again and again. This involves the use of materials in that wide-ranging style in park structures which we loosely identify, and as loosely term, "rustic" or "pioneer."

One opinion holds that park buildings should not appropriate the semblance of primitive structures without appropriating as well all the primitive elements and structural methods of the prototypes. It insists, for instance, that there is no allowable compromise with true log construction; such must be rigidly adhered to in every detail if employed at all. Contrary opinion argues that there are not at hand today the timber resources of pioneer days, that to insist on the use of logs in today's park structures in the spendthrift fashion of our forefathers may be logic in the aesthetic abstract, but in practice wastes those resources the conservation of which largely motivates park expansion.

Taking into account the demands of present day economy and conservation principles, how far may departure from the forthright but prodigal construction of the pioneers properly be urged? What substitutes may be recommended as an acceptable wall surface material for park buildings? Is a proper direction pointed by the fact that the amount of timber stock required for one true log structure will provide material for several more or less adequate and pleasing structures to bloom or blight (the partisan reader may choose his own verb) in its place?

The author carries water on both shoulders. Where wood is the material indicated for use, some of the more important structures may well reproduce faithfully pioneer log construction to create, and so preserve for study, the fast disappearing construction methods of the frontier. On the other hand, minor and oft-repeated units, such as cabins, do well to utilize more economical, even if less picturesque and durable, materials and methods.

The purpose of this publication will be misconstrued if it is interpreted by readers as providing source material for park structures, denying need for competent professional assistance in the creation of park buildings that may follow. The intent is the very opposite. The most completely satisfying subjects included herein are so, not as a result of chance, but because training, imagination, effort, and skill are conjoined to create and fashion a pleasing structure or facility appropriate to a particular setting. Who then but those of professional training and experience are equipped to decide that a perfect structural interpretation

for one setting will sanction adaptation to another, and in what detail or degree modification will make the most of the conditions presented by another environment? If an existing structure is so admired that it persuades duplication, careful analysis will inevitably demonstrate that admiration springs from a nice perfection of the subject within one circumstantial pattern. As that pattern changes so must the structure change. To venture in translation without benefit of technical idiom foredooms to mediocrity, if not to failure.

THE STRUCTURAL ACCOMPLISHMENTS presented herein mirror the skills and devotions of many men who have striven to translate into gratifying actuality the creative abilities of many others. It is ventured to hope that the discussions and comments also do not inaccurately mirror the thoughts and philosophies of friends and associates endowed with capacity for viewing clearly and pointing the way. From the following, among unnamed others, the author exposes himself to the jibes "parrot" or "pirate" and if deserving of neither, he is shamed into a realization that he has proved inept.

Bows to Herbert Maier, when the park museum concept and many principles basic to a fitting park architecture enunciated by him are appropriated herein—to Julian H. Salomon, when a theory and standards for organized camping are outlined—to Edward B. Ballard, when winter sports activities and structures are discussed. Acknowledgments to John D. Coffman and his associates for material in exposition of fire lookout structures, to Thos. C. Vint and his associates for collaboration in pioneering trailer campsite lay-outs. Tribute to Colonel Richard Lieber, Conrad L. Wirth, and Herbert Evison—when there is digression into phases of park and recreation philosophy which they have expounded or sponsored.

Readers will underwrite the author's deep indebtedness to Mr. Evison, Mentor Extraordinary, for a generous counsel that ranged from the grim business of reading much of this material in manuscript to a helpful and frequent checking and re-charting of wavering course. The drawings so ornamental to these pages reflect the talents of a little band of master draftsmen, to whom individually the author acknowledges a very great debt.

A. H. G.

ADMINISTRATION AND BASIC SERVICE FACILITIES

➤ AS HAS ALREADY BEEN STATED, administration and basic service facilities are considered to embrace park structural developments necessary for the control, supervision, and maintenance of an area together with those basic services which might be termed the park equivalents of the city's public utilities. Included are entrance and boundary structures, administration buildings as the seat of order and authority, signs as an instrument of control, equipment and maintenance buildings functioning to give continuity to desirable physical conditions attained, and structures for housing those persons charged with administering and maintaining the park preserve. Here also are those "first things" needed for safe use of an outdoor area by the public, namely, drinking water supply, toilets, rubbish disposal, and fire lookout structures, paralleling respectively the city's water, sanitation, rubbish disposal, and fire alarm systems. These are topped off with trail steps, crossings, culverts, and bridges—all of which seem somehow analogous to the accomplishments of the public roads agency of any governmental unit.

All the foregoing have highly practical functions to fulfil, to express and to aid which we do well to provide practical structures. Some are most properly located beyond the horizon of public view and such need carry no economic overburden of park-consciousness. No one of the several kinds of facilities here classified can be termed other than completely requisite in a park area of size, developed for a proper public use. Because so patently essential in a park, the most fitting conception of most of these will be without frills, which are better indulged in, if at all, in the less essential, but more importantly placed, public use structures that should follow only when the fundamental things have been provided.

What follows in this chapter has been said and written many times by the park-minded. It is

something of a creed for construction environed by Nature and a pardonable repetition as preamble to any consideration of the many major and minor structures given place in natural parks. Because of their truly basic character, the points here recited may not be omitted, for all it is fully appreciated they will reach the ears of many readers as all too familiar echoes. They are the deep roots of a sound park construction, from which any new growth must stem.

The present discussion by no means applies solely to structures concerned with administration and basic facilities. In point of fact the fullest application of the principles will probably involve those structural items less committed to a stern practicability and more concerned with aesthetics by reason of greater contact by the public.

THE STYLE OF ARCHITECTURE which has been most widely used in our forested national parks, and in other wilderness parks, is generally referred to as "rustic." It is, or should be, something more than the worn and misused term implies. It is earnestly hoped that a more apt and expressive designation for the style may evolve, but until it appears, "rustic", in spite of its inaccuracy and inadequacy, must be resorted to in this discussion. Successfully handled, it is a style which, through the use of native materials in proper scale, and through the avoidance of severely straight lines and oversophistication, gives the feeling of having been executed by pioneer craftsmen with limited hand tools. It thus achieves sympathy with natural surroundings and with the past.

In high, mountainous and forested regions the various structural elements of rustic construction—logs, timbers, rocks—must be reasonably overscaled to the structure itself to avoid being unreasonably underscaled to surrounding large trees and rough terrain. In less rugged natural areas, the style may be employed with less emphasis on oversizing. For

pleasing harmony, the scale of the structural elements must be reduced proportionately as the ruggedness and scale of the surroundings diminish. When this recession in scale reaches a point at which there is any hint of "twig" architecture masquerading under the term "rustic", the understanding designer will sense immediately its limitations and take refuge in some widely different style.

That the so-called rustic style offers, if anything, more pitfalls to failure than do the more sophisticated expressions, is not widely enough understood. And while generally speaking it lends itself to many semiwilderness regions perhaps better than the others, its use is by no means appropriate to all park areas. This is instantly demonstrated by recalling the wide range of dominant characteristics of our parks. Spectacular snow-covered mountain parks, dramatic primeval forests, open expanses of arid desert or limitless prairie, shifting sand dunes, gently rolling woodland and meadow, semi-tropical hammock are not to be served appropriately by a single structural expression. A range of architectural styles as varied as these backgrounds must be employed before our park architecture will have come of age.

Nothing is more indicative of lack of a proper sense of values in park technique than the frequently expressed determination to "make a feature" of a shelter or other park structure. The features to be emphasized and stressed for appreciation in parks with which we are here concerned are the natural features, not the man-made. After all, every structural undertaking in a natural park is only a part of a whole. The individual building or facility must bow deferentially before the broad park plan, which is the major objective, never to be lost sight of. The park plan determines the size, character, location, and use of each and every structure. Collectively, these should be properly inter-related; at the same time they must be closely and logically related to the park plan to insure its workability and harmony. Otherwise, there will result, as someone has expressed it, a costly but ineffectual collection of "spare parts."

Although a park structure exists solely for the use of the public, it is not required that it be seen from some distance. In its most satisfying expression, the park structure is designed with a view to

subordinating it to its environment, and it is located so that it may profit from any natural screening that may exist. Suitable signs marking the way to a particular park building which has been appropriately retired are to be preferred to the shock of finding a building intruding at a focal point or visible for great distance.

THE SUBORDINATION OF A STRUCTURE to environment may be aided in several ways. One of these is to screen the building by locating it behind existing plant material or in some secluded spot in the terrain partly screened by some other natural feature. In the absence of such screening at a site otherwise well-suited for the function of the building, an adequate screen can be planted by repeating the same plant materials that exist nearby. Preferably, structures will be so located with reference to the natural features of the landscape that it is unnecessary to plant them out.

The color of the exteriors, particularly the wooden portions of park structures, is another most important factor in assimilation. Naturally such colors as occur in, and are commonest to, the immediate surroundings serve best. In general, warm browns will go far toward retiring a wooden building in a wooded or partly wooded setting. A light driftwood gray is another safe color. Where contrast is desired to give architectural accent to minor items, such as window muntins, a light buff or stone color may be sparingly used. Strangely enough, green is perhaps the hardest of all colors to handle, because it is so difficult to get just the correct shade in a given setting and because it almost invariably fades to some very different hue. A green roof might be expected to blend with the green of the surrounding trees, yet because a mass of foliage is an uneven surface, intermingling other colors, and broken up by patches of deep shadow and bright openings, and because a roof is a flat plane which reflects a solid continuous color, anything but harmony results. Brown or weathered gray roofs, on the other hand, blend with the colors of earth and tree trunks to much happier results.

While structures should be so designed and so located that it will not be necessary to plant them out, the proper introduction of vegetation along the foundations will gracefully obliterate the other-

wise unhappy line of demarcation between building and ground. Rough rock footings artfully contrived to give the impression of natural rock outcroppings are a means of blending the structure to the site. A batter to a stone wall, with skillful buttressing of the corners, if done with true finesse, will often bring to the building that agreeable look of having sprung from the soil. Park structures giving that impression are of the elect.

Some park structures give hint of their designers' long dalliance in cities, where architectural design has become a matter of one façade. It should be remembered that park buildings will be viewed from all sides, and that design cannot be lavished on one elevation only. All four elevations will be virtually front elevations, and as such merit careful study. Admittedly, one side of major park buildings will always provide for service, and while enclosures on park areas are to be deplored and only installed where necessary, a palisade or some other suitable enclosure on this side of the building should completely screen all service operations.

As a rule, park structures are less conspicuous and more readily subordinated to their settings when horizontal lines predominate and the silhouette is low. Where snow conditions will permit, any feeling of verticality will be avoided by adopting a roof low in pitch, perhaps not more than one-third. Too frequently roofs needlessly dominate both structure and setting.

THE DEGREE OF PRIMITIVE CHARACTER in park structures that native materials can contribute depends entirely on intelligent use. Not alone the fact, but the quality of "nativeness" of materials is to be sought. Local stone, worked to the regularity in size and surface of cut stone or concrete block, and native logs, fashioned to the rigid counterpart of telephone poles or commercial timber, have sacrificed all the virtue of being native.

Rock work needs first of all to be in proper scale. The average size of the rocks employed must be sufficiently large to justify the use of masonry. Rocks should be placed on their natural beds, the stratification or bedding planes horizontal, never vertical. Variety of size lends interest and results in a pattern far more pleasing than that produced by units of common or nearly common size. Informality

vanishes from rock work if the rocks are laid in courses like brick work, or if the horizontal joints are not broken. In walls the larger rocks should be used near the base, but by no means should smaller ones be used exclusively in the upper portions. Rather should a variety of sizes be common to the whole surface, the larger predominating at the base. Rock should be selected for its color and hardness.

Logs should never be selected because they are good poles. There is nothing aesthetically beautiful in a pole. Logs desirable in the park technician's viewpoint are pleasingly knotted. The knots are not completely sawed off. The textural surface of the log after removal of the bark is duly appreciated and preserved. Strong as may be the immediate appeal of structures built of logs on which the bark is left, we do well to renounce at once this transitory charm. If the bark is not intentionally stripped, not only will this process naturally and immediately set in, but the wood is subjected to aggravated deterioration through the ravages of insects and rot. It is in the best interests of the life of park structures, as well as in avoidance of a long period of litter from loosening bark, and of unsightliness during the process, that there has come about general agreement that the bark should be entirely sacrificed at the outset.

When the timber resources of the American frontier seemed limitless, it was usual to lay the sills of a log cabin directly on the ground, without supporting stone foundations. When after a time the logs in contact with the earth had rotted to a point where the cabin commenced to list and sag, another cabin was built, and the earlier one abandoned. This, it seems, in the economy of the frontier, was more reasonable than to have provided a foundation under the earlier cabin. Regardless of the pious respect a log cabin builder of the present must have for the traditions of the past, the changed economy of our day demands that his cabin be preserved against deterioration by the use of masonry or concrete supporting walls or posts that extend well above grade.

THIS OUTLINE OF THE FACTORS which make for the desirable and appropriately rugged, handcrafted character of park structures would be woefully

incomplete if the matter of roof texture were left unconsidered. The heavy walls of rock and timber which are urged as fitting to a natural environment are assuredly created in vain unless crowned with roofs having related character. Surmounted with roofs trivial in aspect and thin in fact, the heavy walls appear robbed of justification. Verge members in gables should tend to be oversized, eave lines to be thick, and the roofing material to appear correspondingly heavy and durable. Where wood shingles or shakes are used on a roof, these should be fully an inch in thickness if possible, and the doubling of every fifth course or so, unless the building is quite small, will bring the roof texture into more appropriate scale with the structure itself and with the other materials that compose it. The primitive character we seek to create is furthered tremendously if we shun straight rigid eave and course lines in favor of properly irregular, wavering "freehand" lines. The straight edge as a precision tool has little or no place in the park artisan's equipment.

Since structures exist in parks through sufferance, it follows that it is highly desirable in every area to keep down the number of them. A small area can be ruined by a clutter of minor buildings which, however necessary their purpose, seem to have been forced into every vista to inflict a con-

sciousness of the hand of man. Two functions, or even more, where closely related at a given location, should be combined under one roof. This is not in defense of excessively large buildings. It is sound practice only within reasonable limits. It is based on a belief that a localizing of infection is preferable to an irritating rash of trivial structures all over an area. The grouping of two or more facilities under one roof tends to bring welcome variety to park structures generally. The limited range of expression of any simple, one-purpose building is vastly widened as other purposes are combined in it.

The structures necessary in a park are naturally less obtrusive if they are reasonably unified by a use of one style of architecture, limited construction methods, and not too great variety in materials. When a truly inappropriate style of architecture already exists in a park in which new work is contemplated, it is urged that the new buildings do not stubbornly carry on the old tradition. The best judgment available should be consulted to determine the style most appropriate to the area, and this then frankly and courageously launched. If the new style is the more appropriate one, it will prevail. Time will eliminate the earlier, inappropriately styled buildings for the disturbing contrasts they produce.



Bridge, Dutchess County, New York

ENTRANCEWAYS AND CHECKING STATIONS

IN ITS SIMPLEST and, theoretically, its most desirable expression, the park entranceway is merely a trail or a roadway taking off from a highway and leading into an area dedicated to public use and enjoyment. But it is not long permitted to retain so simple a form. Immediately demands for traffic safety, through elimination of the hazards of steep grades, sharp turns, and obstructions to vision, assert themselves, and the simple unobtrusive entranceway is doomed.

To increase the safety factor for automobiles leaving or entering the main traffic flow at the entrance take-off, the highway is first widened, then the entrance road, and the intersection is transformed by sweeping curves. Tree and plant growth, and perhaps a hillside, which interfere with 60-mile-speed vision, are eliminated. There must be a striving to overcome the traveling public's quick conclusion that here is a new speedway, or the gateway to some optimistic suburban subdivision. All, doubtless, necessary and inevitable "improvement", but the unself-conscious park entranceway, bleeding from the many wounds, expires.

It will be gloriously reborn, having sacrificed only its naive innocence for a myriad of more worldly values. Prompt to admit that the entranceway is more sinned against than sinning, we can but hope that, when forced to take measures in its own defense, it will not too brazenly flaunt artificiality and sophistication.

A mere sign generally proves insufficient. Pylons are resorted to in the hope of standing off the onrush of trucks and speeders. Gates are proposed, but more often than not these succeed rather in bespeaking the modern "burial park" than the kind of park it is hoped to typify. There results confusion worse confounded: solution seems beyond reach. Is it then any wonder that flanking walls, gate lodges, towers, lights, and arches are introduced as appendages where they seem to give

promise of proclaiming beyond doubt just what the entrance does or, failing this, does not serve? The temptation is hardly resistible, and the complex, almost institutional, rendering evolves.

Once fully aware of the factors that deny to the park planner a simplicity of entranceway, while concurrently hampering the success of the complicated alternative, it is well to take stock of just what, in spite of all unfavorable limitations, a park entrance can be and convey.

It should at once invite and deter, encouraging use while discouraging abuse of the park by the public. It should be all things to all men, tempting the devotees of Nature and of the past, while warding off and detouring that bloc of the public primarily bent on a greater gasoline consumption—a kind of semaphore simultaneously reading "stop" and "go", yet somehow avoiding all accidents to traffic and to temperament. Surely no easy accomplishment, perhaps unattainable!

The simple appeal and mystery of the rural lane denied us, we can seek to beckon by means of an approach road of inviting width. But the speeder bent on getting nowhere in particular with all possible haste must somehow be urged diplomatically in another direction. An island dividing the in-and-out traffic will promote safety and restrain recklessness without suggestion of inhospitality. If an entrance fee is to be collected, an island kiosk is a very practical station point for collecting admissions and for the attendant duties of checking and providing information. From a kiosk so located, a guard can conveniently give information to departing patrons without undue interruption to the business of admissions. By recalling the familiar tollbridge entrance, it serves to suggest to the entrant that a fee is to be collected, and saves time that with any other arrangement might be consumed in query and explanation. The checking station, lodge, or sentry box to one side of the roadway is sometimes preferred, especially when the traffic flow is not heavy.

When a ranger or other employe is required to be on duty at an entrance during the hours a park is open to the public, suitable shelter must be provided for him. Often it is necessary to provide heat and toilet facilities in the attendant's room of the checking station or gate lodge. Some of the national parks and the State parks of Indiana have checking stations notable for their attractive character and practical completeness. When any portion of the using public is transported to the park by common carrier, a sheltered waiting space, as an adjunct of the entranceway, has a real function. There are shown on the pages which follow some successful examples of the several possible arrangements mentioned herein.

For convenience of administration and limiting roadways the ideal park plan would have but one entrance. It follows that where affecting conditions of terrain, population centers, and other factors dictate more than one entrance, the fewer of these, the better. Particularly where an entrance fee is an accepted principle is the limiting of entrance points desirable and highly so for the economy it effects. The accessories necessary to any entranceway staffed with an attendant call for greater initial investment than the simple untended entrance, and the employe himself is a continuing operating charge.

For a proper control, entranceways to many parks must serve as barriers during certain hours. Gates become a practical necessity, but any pretentiousness of these is apt to suggest an institution. Probably the low gate, related in appearance to the familiar log barrier of the parking area and pivoting at one end for operation, is the happiest solution. It serves adequately as barrier and does not obscure, complicate, or presume to compete with the landscape beyond. Among examples of this type, the gate of the checking station at Turner Falls, Oklahoma, is of exceptional merit. A chain barrier is an even simpler solution, but should always be equipped with a conspicuous sign or be made otherwise readily visible under automobile headlights.

Overhead construction, utilizing arch or lintel,

perhaps overdone in an earlier era, seems not to find wide current favor. Doubtless the changed attitude of mind results from a worthy desire to avoid any feeling of confinement, or any subconscious recall of the triumphal arch and staff creations long associated with street parades and carnivals.

In rare instances, as in the case of a small park not heavily used and requiring a very limited staff, a custodian's dwelling or lodge must necessarily be located so that it is almost a part of the entranceway. The connotation of gate lodge guarding a country estate is then to be avoided. Generally speaking, however, this location for the caretaker's residence is unfortunate for it unfairly places that official and his family in a situation of being on call for 24 hours a day.

The speed and conditions of present day traffic, in which the car is quicker than the eye, dictate that the public be given timely warning and vision of its approach to the park entranceway. In order that brakes may be applied effectively at prevalent, popular speeds, a considerable stretch of highway border is affected. While conservation of all possible forest cover may be the primary and praiseworthy objective of the natural park enthusiast, it is urged that it yield precedence outside the entrance gate to the demands for safety. The practical advantages to be derived from the placement of any entrance features well back from the main highway and from the maintenance of suitably cleared sight lines must be acknowledged by all as paramount.

The park entranceway may meet all the requirements of function and many of the standards of beauty and yet fall far short of its potentialities. As the outpost of a reserved area offering certain distinctive recreational opportunities to the public, it can with subtlety and grace project the promise and lure of the region and its offered recreation to the very public highway. The truly successful entranceway will be contrived to be the simple essence of the characteristics of the park to no resultant interference with the basic and material functions of ingress, egress, and barrier.



Boyle Metropolitan Park, Little Rock, Arkansas



Twanoh State Park, Washington

ENTRANCE GATES

Hardly major entranceways but sometimes a necessary part thereof, as when a cattle guard is required across the main roadway, yet provision must be made for admitting animals to the park area on occasion. To such purpose function the gates shown directly above, below, and to the right. The gate at upper right is typical of the Pacific Northwest. The decorative gate at lower right is very definitely regional with the full flavor of the Southwest. Its almost solid pattern suggests that its purpose is to close off a view of what is beyond—a major characteristic of a service gate.



Pueblo Mountain Metropolitan Park, Colorado



Tucson Mountain Park, Arizona



University Ruins, Saguaro Forest State Park, Arizona



Cape San Sebastian State Park, Oregon



Echo Lake, Westchester County, New York

STONE ENTRANCE PYLONS

The outer columns feature stone pylons vertical in feeling. A more squat form is common to those intervening. Between the limits represented by the casual piling of rock that buttresses the pylon at Lincoln Park and the meticulous masonry of the Zion National Park pylon, varying degrees of sophistication of masonry are in evidence. The obligation to employ boulders where these are the only indigenous rock of an area is a heavy handicap to start with. Within the limitations that boulders impose the sign-pylon at Steckel Park,



Pinnacles National Monument



Lincoln Park, Oklahoma City, Oklahoma



Deception Pass State Park, Washington

California, amounts to an excellent performance.

In the Lincoln Park pylon the transition from convincingly natural rock outcrop at base to the climax of finished masonry with cut stone cap is skillfully handled—here is the evolution of masonry in tabloid.

A sign is usually the necessary accompaniment of the pylon. This may be suspended from an arm, inset as a panel, or otherwise incorporated in the scheme. The squared timber with incised legend set vertically into the corner of the stone pier at Deception Pass State Park has novelty.



Zion National Park



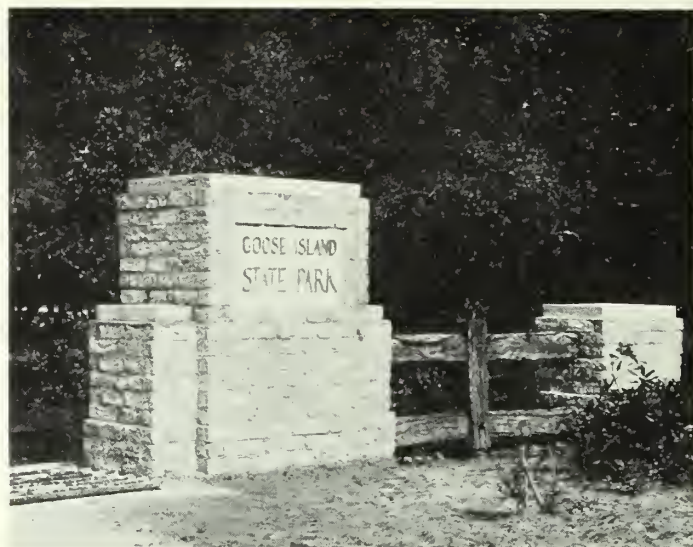
Steckel County Park, California



Lassen Volcanic National Park



Bonham State Park, Texas



Goose Island State Park, Texas



Garner State Park, Texas

STONE PYLONS IN TEXAS

In park development in the Lone Star State, entrance pylons are impressive. Surrounding illustrations exhibit the variety of texture and pattern and the considerable originality of silhouette to be found in that area. Infrequent in park construction, and for that reason, refreshing, is the regularity of the masonry units that form the Goose Island pylon. The Bonham example has dignity and restful proportion; that at Hereford, vigorous personality. The tall pylon at Lake Worth proves that skill in execution can at once assemble in a pylon the fixity of finished masonry, sans its usual



Lake Worth Metropolitan Park, Fort Worth, Texas



Longhorn Cavern State Park, Texas



Hereford State Park, Texas



Caddo Lake State Park, Texas

harshness, and the informality of piled rock without resulting appearance of instability.

At Longhorn Cavern State Park the entrance road is flanked by the two rock piers shown directly below. The one carries the designative sign, the other symbolizes the cavern that is the outstanding feature of this park area. At Garner State Park the pattern of the masonry and the mass of the pylon command attention. The pylon at lower right has a bulk that permits it to serve as kiosk without sacrifice of pylon silhouette. It is regrettable that a close grouping of subjects as here presented is apt to be misleading as to the size of each.



Lake Brownwood State Park, Texas



Longhorn Cavern State Park, Texas

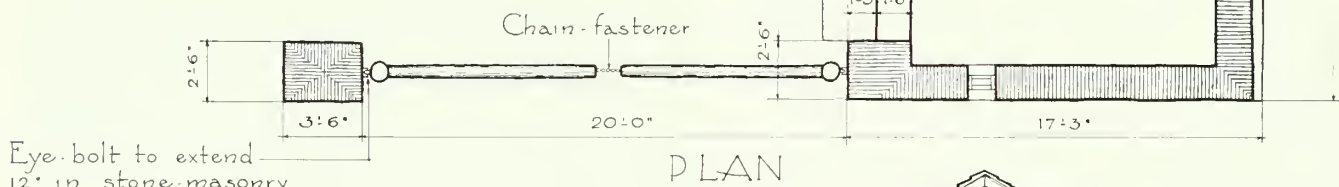
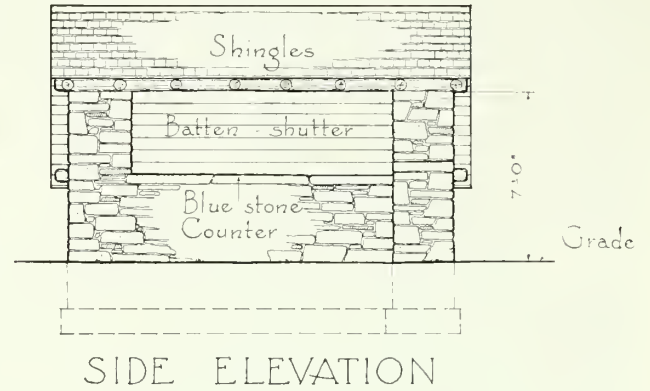


Bastrop State Park, Texas

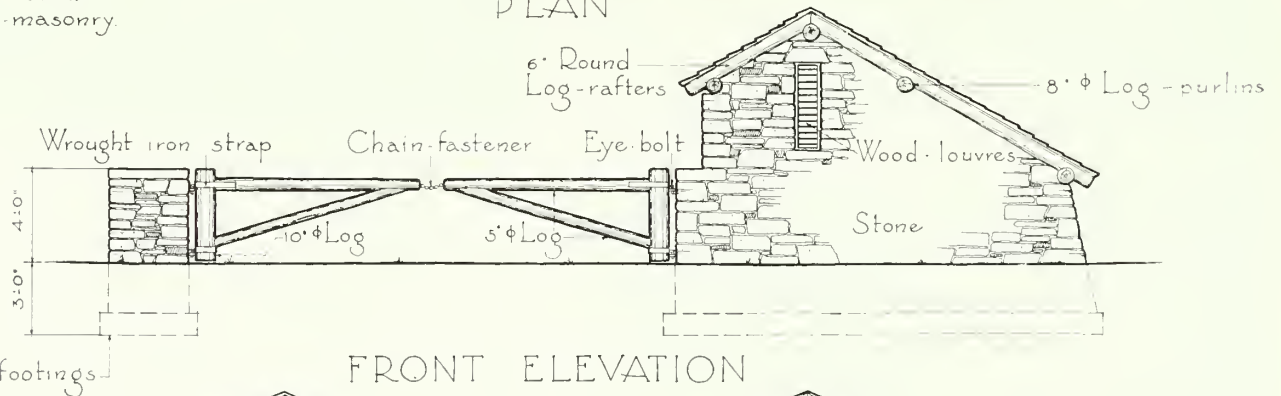


Contact Station - - - Hunter Brook Picnic Woods
Bronx Parkway Extension, Westchester County - New York

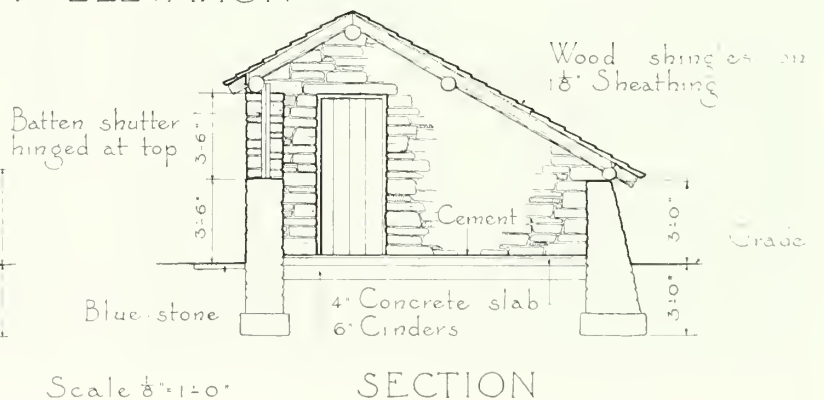
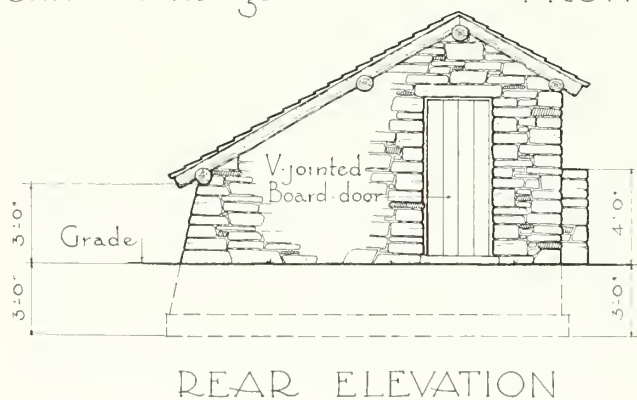
This pleasing little structure serves the dual purpose of controlling a picnic area adjacent to a parkway and providing a salesstand for charcoal as fuel for picnic cooking. Perhaps the millenium will be ushered in when all stone masonry in parks is as meritorious as in this example.



Eye-bolt to extend
12" in stone-masonry.



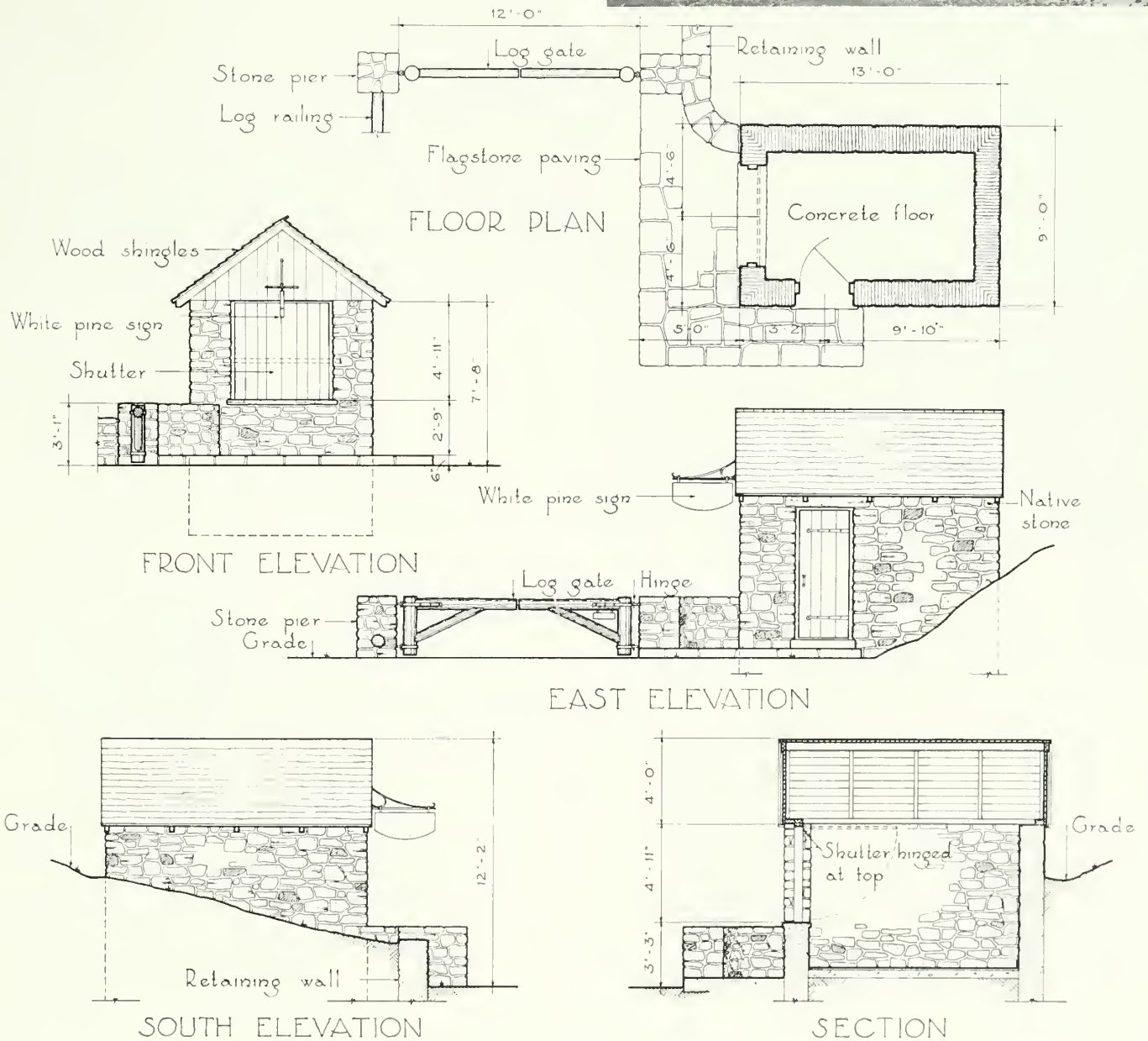
Bottom of footings

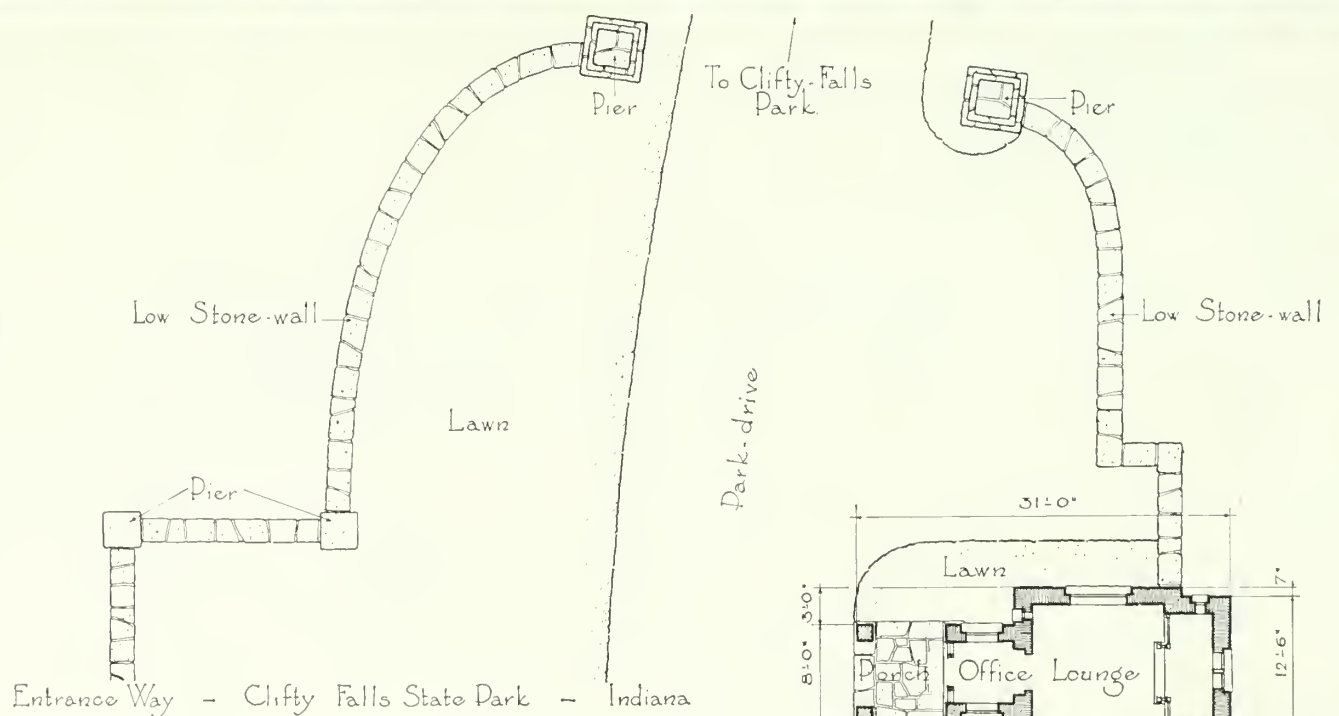


Scale $\frac{1}{8}" = 1'-0"$

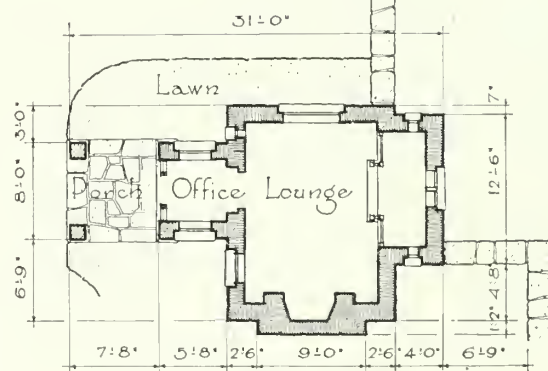
Entrance Way Mt Penn Park Reading, Pa.

Not to be judged as a park entrance, but like the example on the facing page, a facility for the control of a picnic grounds. From such a station point fees may be collected, charcoal sold, picnic tables allotted, and closing hours and other prevailing regulations enforced.





The stage is here well-set for the softening influence of time and that process of assimilation of structure that only planting will accomplish. The need for a large window in the vestibule has resulted in a slenderness of stone pier that is in unfortunate contrast with the heavy wood post of the porch. The massive chimney, the shake roof with interesting ridge termination are pleasing details.



FLOOR PLAN

Scale 1/8" = 1'-0"



Brown County State Park, Indiana



Spring Mill State Park, Indiana

INDIANA ENTRANCEWAYS

A page from a family album—counterfeit presentments of five brothers of the Clifty Falls entranceway shown on the facing page. As with members of any family group these gate lodges or checking stations have their points of similarity and surprising points of difference. The Brown County and Spring Mill brothers are Hoosier to the core. Their paternity goes unquestioned. As to the others, although not all the old Hoosier traits persist, there is no question of their general attractiveness however it has been come by.



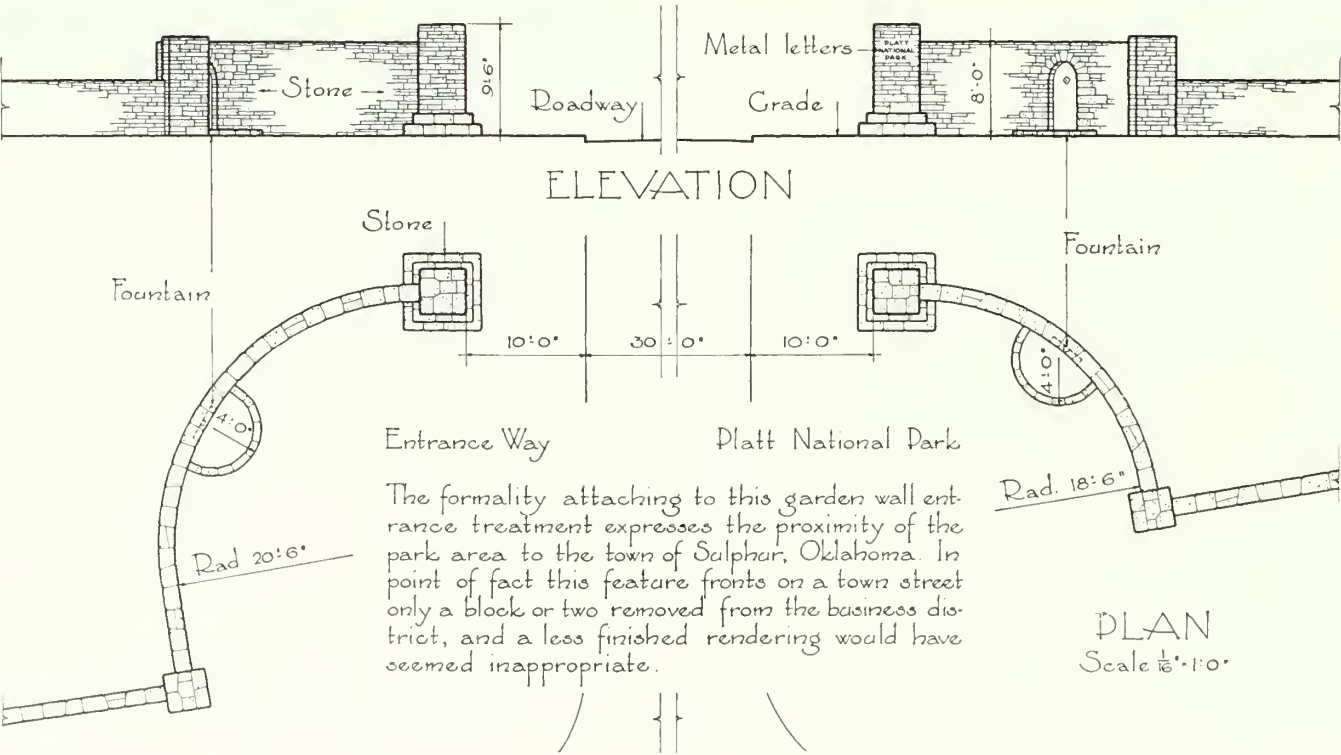
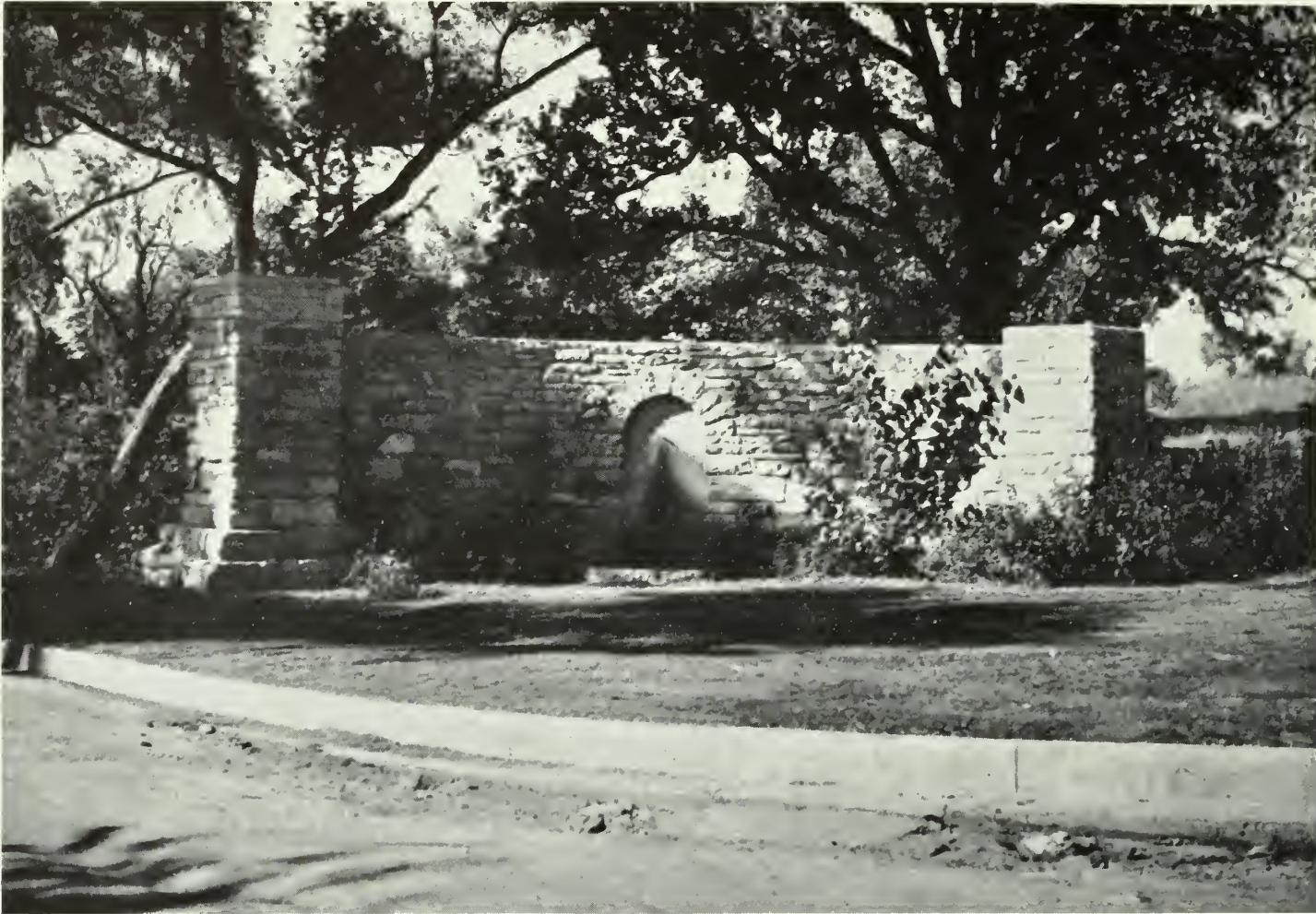
Turkey Run State Park, Indiana

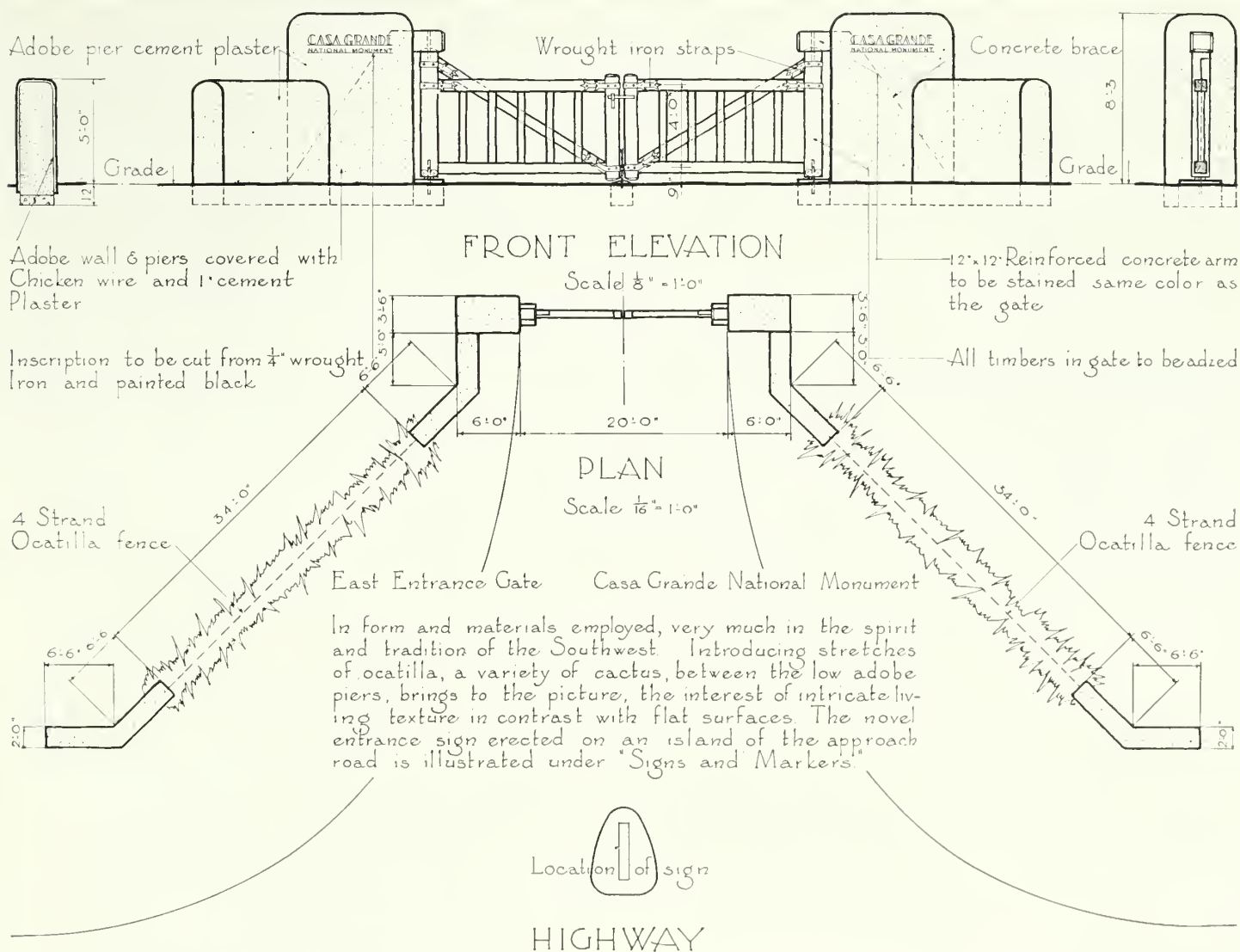


Pokagon State Park, Indiana



McCormick's Creek State Park, Indiana

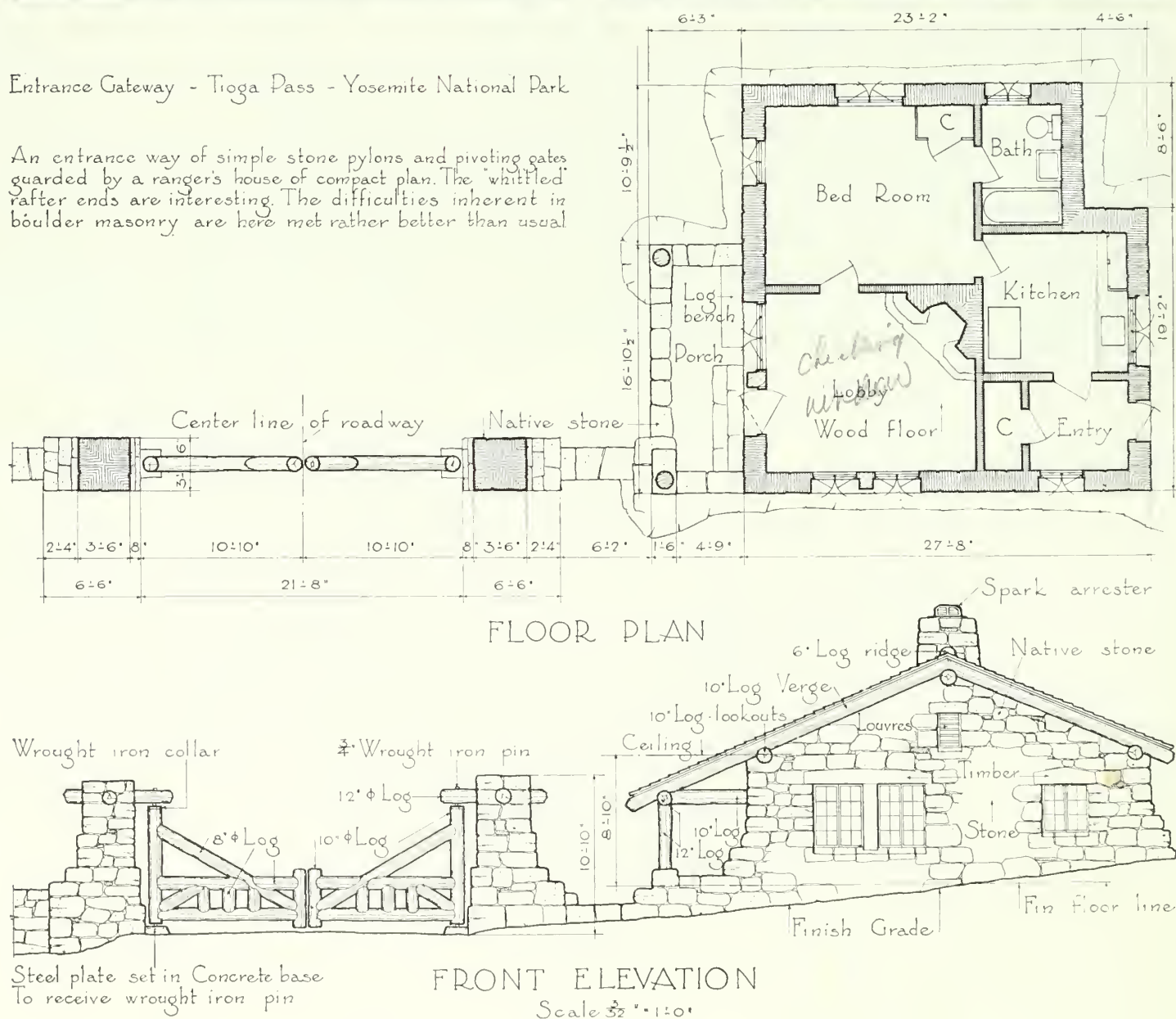


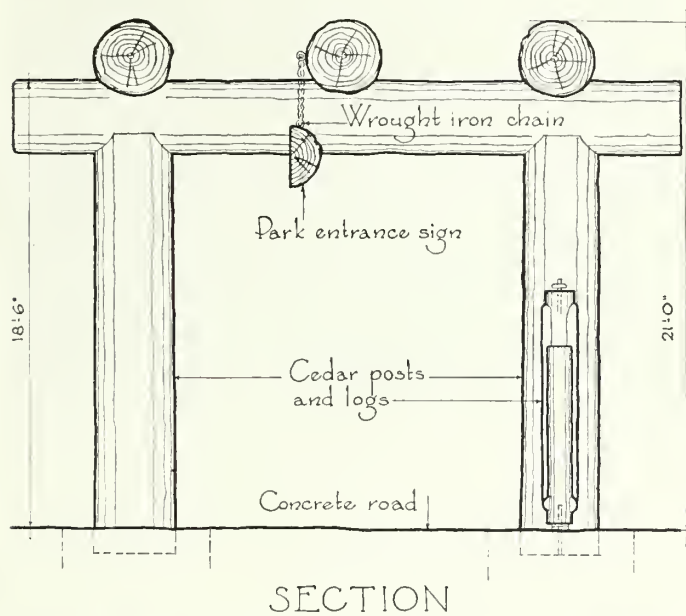
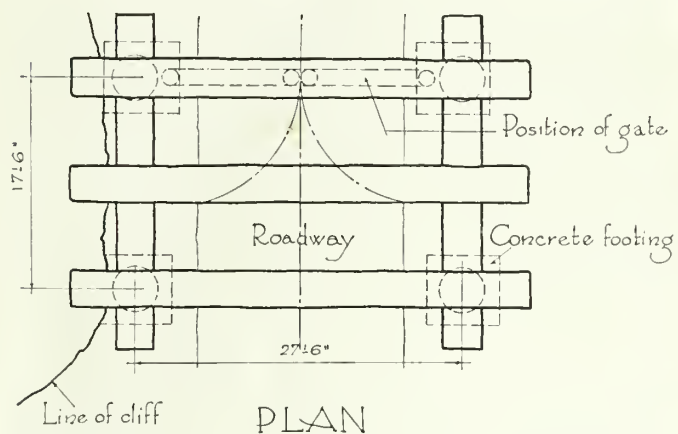




Entrance Gateway - Tioga Pass - Yosemite National Park

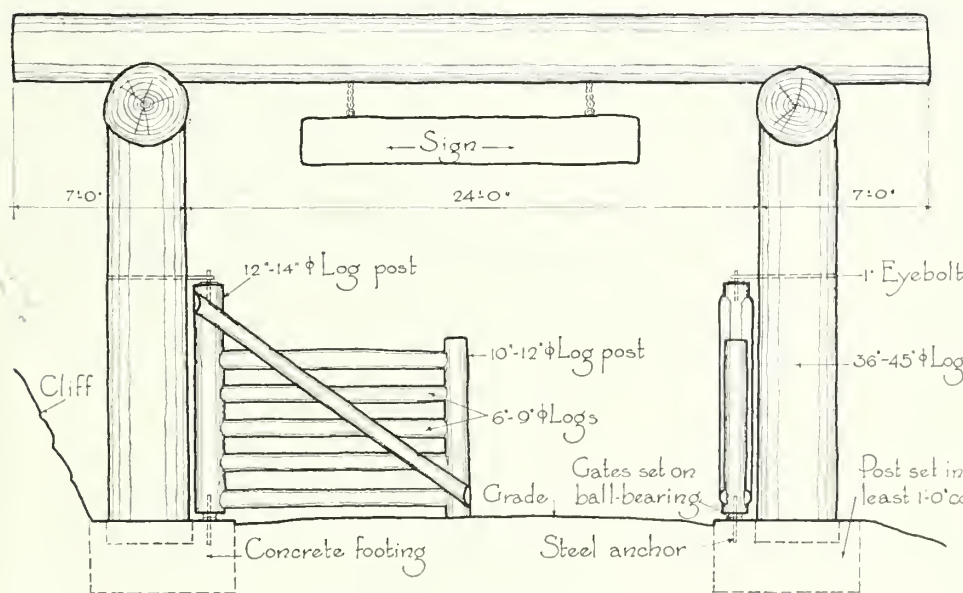
An entrance way of simple stone pylons and pivoting gates guarded by a ranger's house of compact plan. The 'whittled' rafter ends are interesting. The difficulties inherent in boulder masonry are here met rather better than usual.



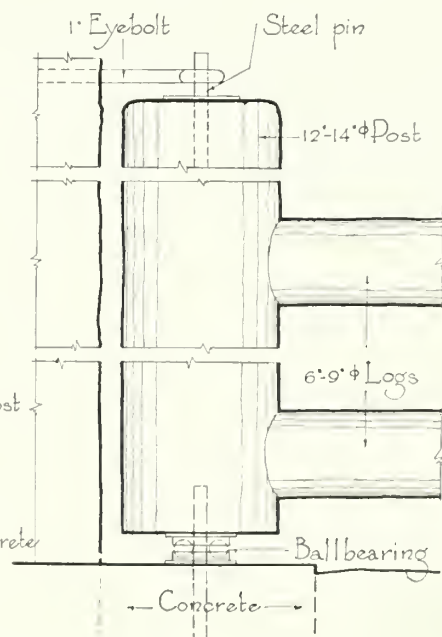


Entrance Way — — Mt. Rainier National Park

Entrance gates with overhead construction do not have their one-time popularity in our natural parks. This example has vigorous proportions and the huge cedar logs used are doubtless representative of the size of the timber that features the region. A ball bearing pivot is highly desirable when gates are of this great size and weight.



Scale 3/8"=1'-0"

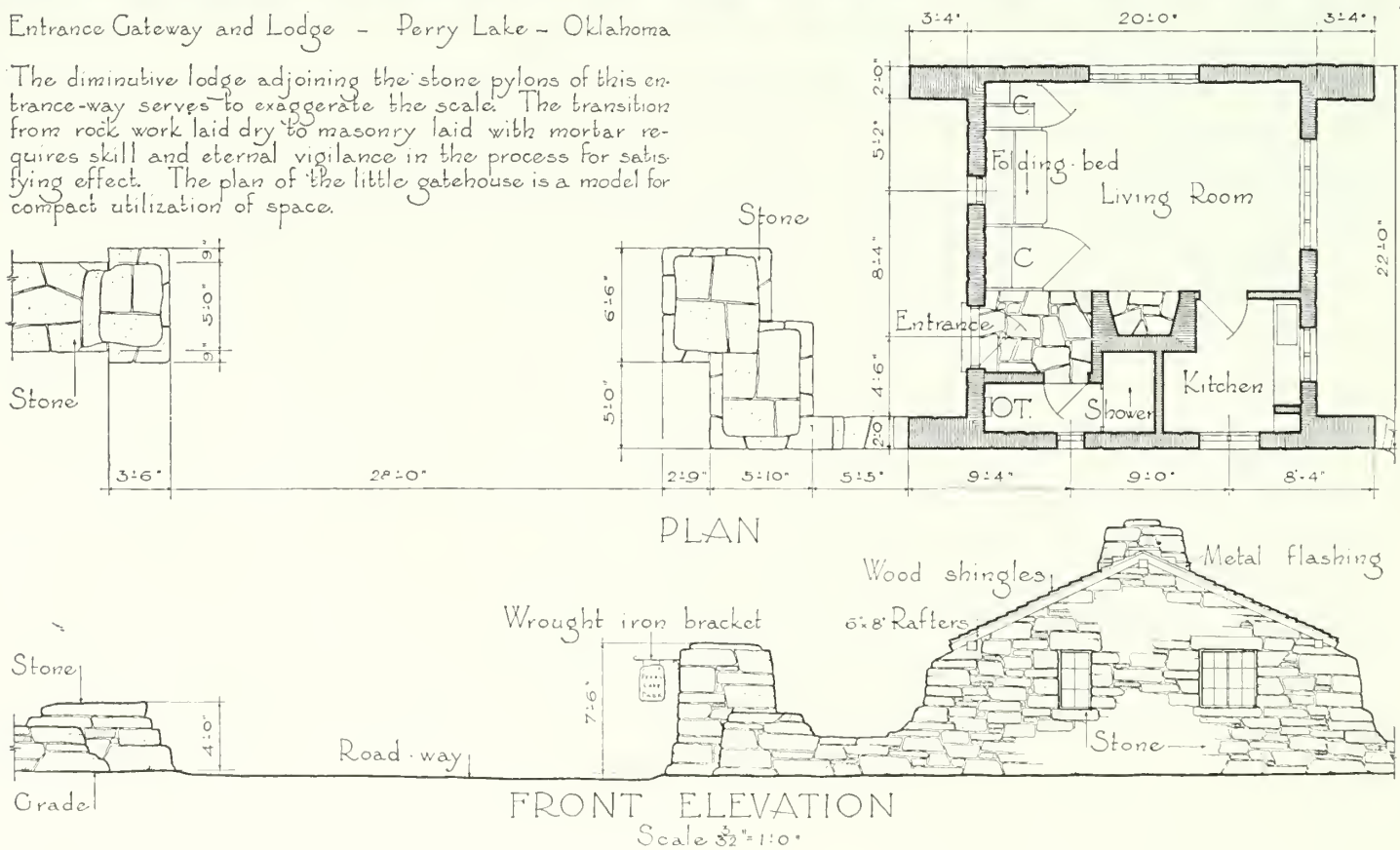


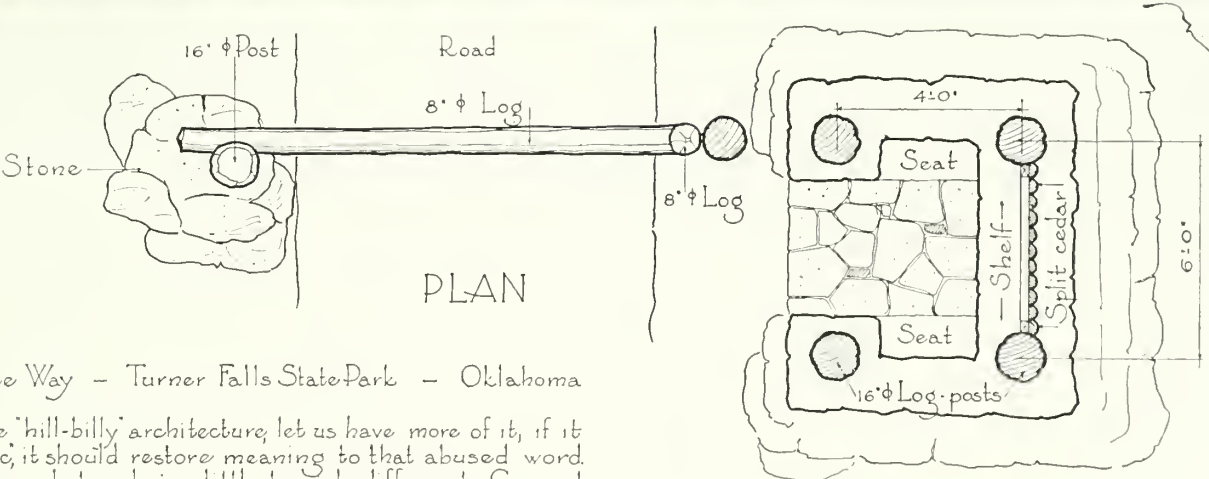
Scale 3/8"=1'-0"



Entrance Gateway and Lodge - Perry Lake - Oklahoma

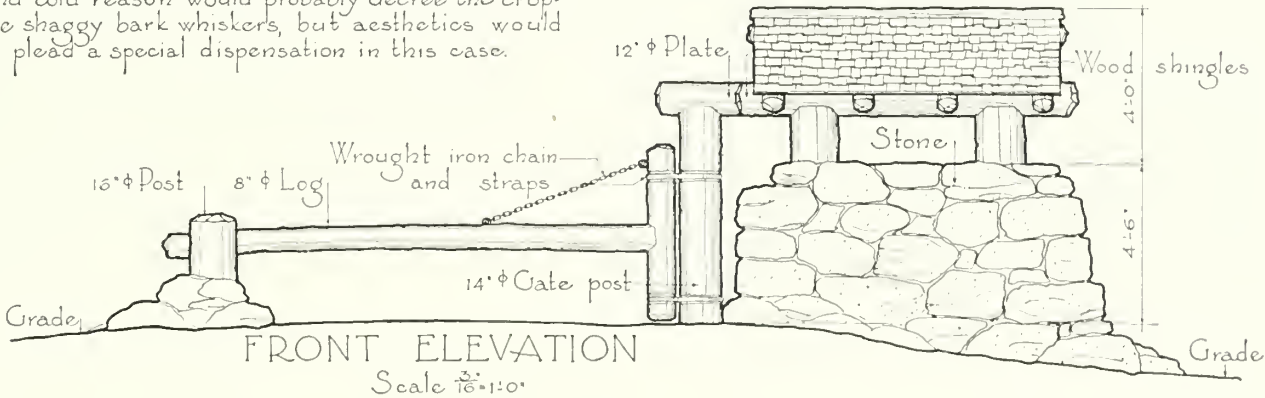
The diminutive lodge adjoining the stone pylons of this entrance-way serves to exaggerate the scale. The transition from rock work laid dry to masonry laid with mortar requires skill and eternal vigilance in the process for satisfying effect. The plan of the little gatehouse is a model for compact utilization of space.

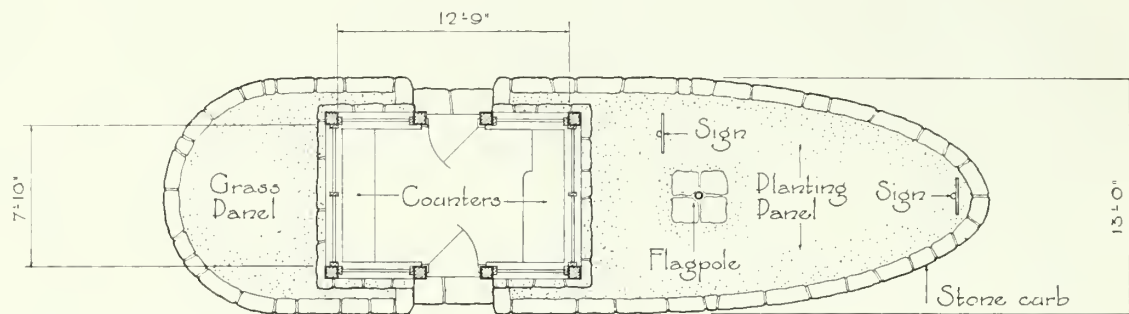




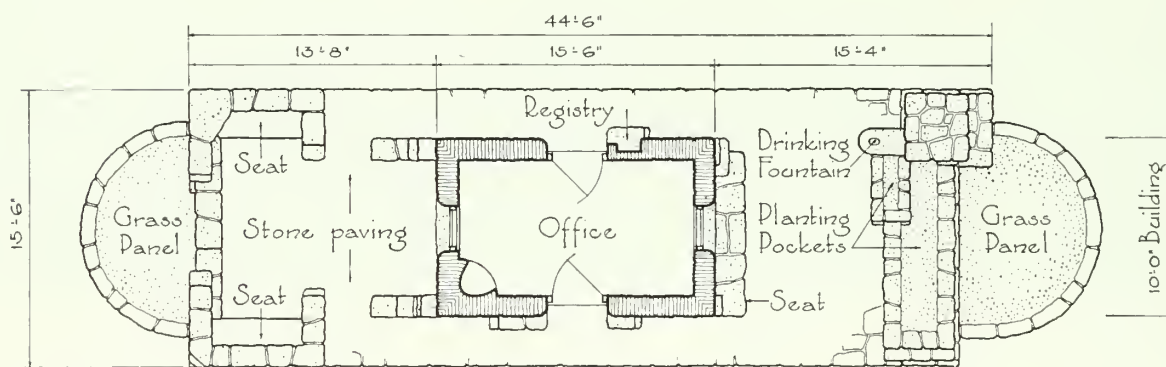
Entrance Way - Turner Falls State Park - Oklahoma

If this be "hill-billy" architecture, let us have more of it, if it be rustic, it should restore meaning to that abused word. Here is much to admire, little to wish different. Current opinion and cold reason would probably decree the cropping of the shaggy bark whiskers, but aesthetics would as surely plead a special dispensation in this case.

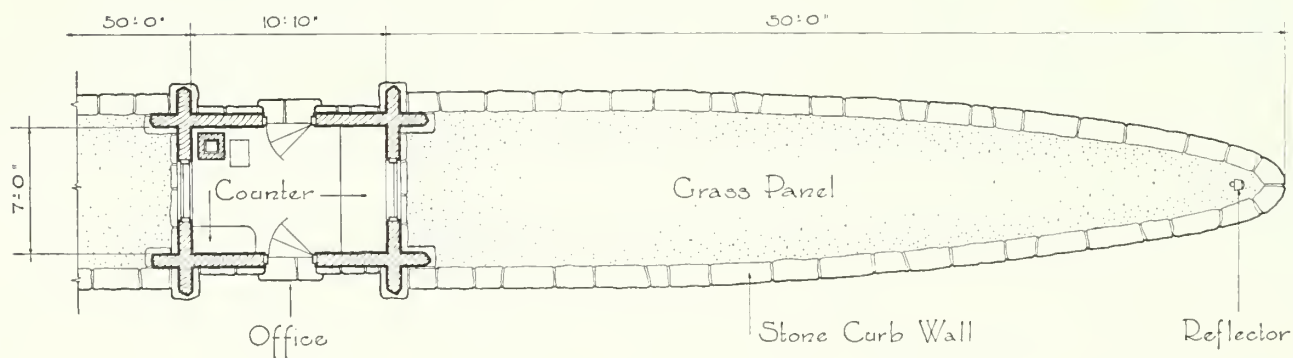




Sequoia National Park



Mesa Verde National Park



Bryce Canyon National Park

Scale $\frac{3}{32}" = 1'-0"$

An island location for the checking station permits effective spotting of the flagpole and the traffic and regulatory signs that are the usual complement of the entranceway. This structure offers clear vision in every direction. Rusticity has tactfully and tactically given way before a well-reasoned practicability to results that invest the facility with a sure air of businesslike control and authority.



Entrance Checking Station, Sequoia National Park

The architectural kinship existing between this appealing little building and the other Mesa Verde structures illustrated under other sections evidences thoughtful design. Interesting features of the island development are the low walls, drinking fountain, outdoor seats, planting pockets and panels, and the registry ledge on the outside wall of the building proper.



Entrance Checking Station, Mesa Verde National Park

This small log building echoes the character present in the administration building of this park, shown elsewhere. The benefits of the island entrance checking station are, of course, well understood. The reflector warning at the point of the island is a practical provision. The position of the chimney well free of all contact with the log walls is sound fire-preventive planning.

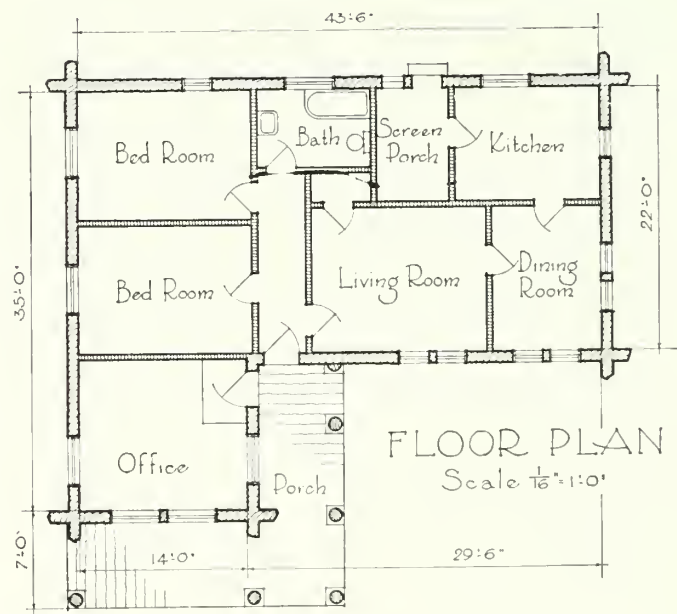


Entrance Checking Station, Bryce Canyon National Park



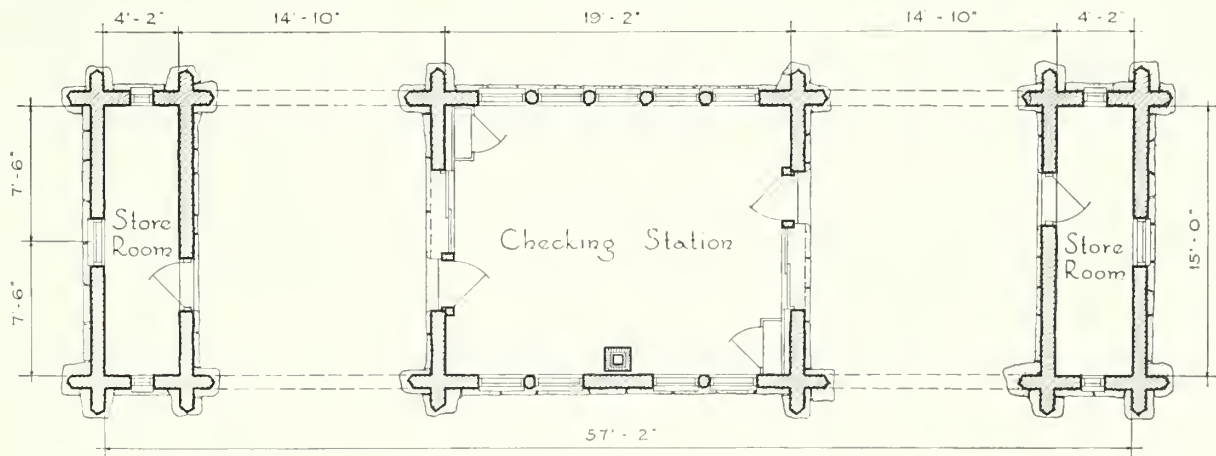
Entrance Station, Mount Rainier National Park

A splendid log structure deserving of the impressive background it enjoys. Only the trivial chimneys fail to register to the high standards all other details maintain. The log work and the scale of the rafters, purlins, and shake roof with pole-capped ridge are excellently handled. The low log barrier in addition to practical purpose serves to link the log construction with the surroundings. There is a well-tended neatness about this structure and setting untypical of wilderness areas generally, yet somehow not discordant here.





Entrance Station, Yellowstone National Park



FLOOR PLAN
Scale $\frac{3}{32}$ " = 1'-0"

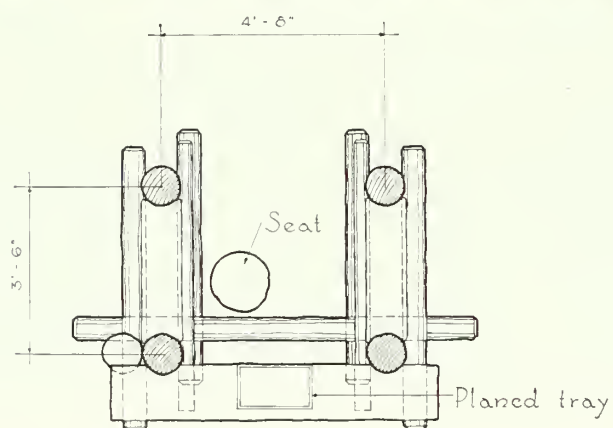
The uncommon and ambitious extent of this entrance feature gives shelter for the ranger as he checks the cars entering or leaving the park—by no means a superfluous provision in many locations. The masonry foundation by its height protects somewhat the log construction in a region of heavy snow-

fall and by its projection curbs the damage potential in automobiles passing through the covered ways. The practical purposes of the foundation would not be jeopardized, and the total effect of the building would be improved, by some judicious low growth to break the harsh and barren foundation line.

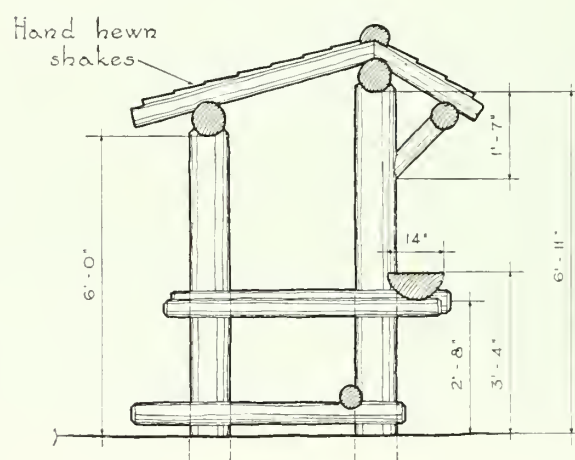


Ticket Stand
Mohawk Metropolitan Park Tulsa, Oklahoma

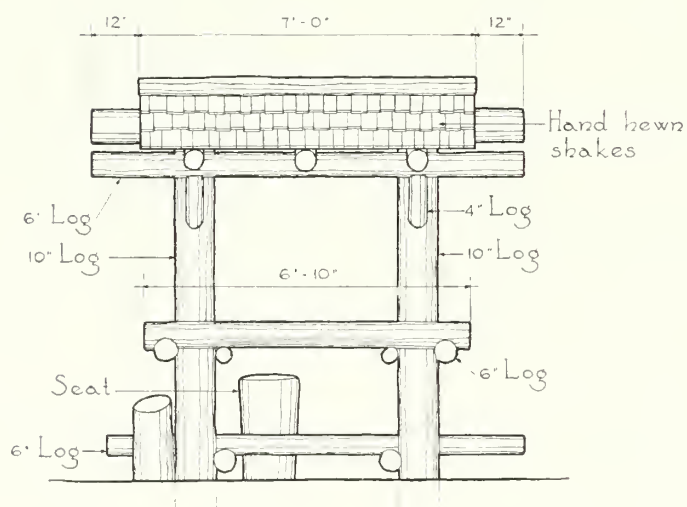
The specific purpose of this altogether slightly little facility is unknown, but it can be recommended as entirely reasonable at the entrance to a heavily patronized picnic area where on occasion picnic tables and fireplaces are assigned rather than fought for. It might also serve advantageously as a registration booth when a large group picnic or family reunion was the order of the day.



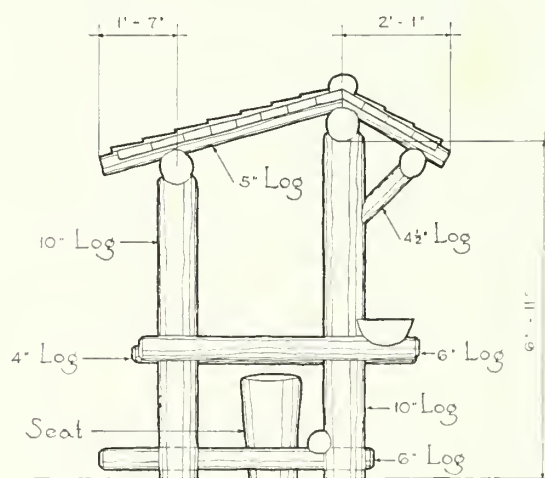
PLAN



SECTION



FRONT ELEVATION



SIDE ELEVATION

Scale $\frac{1}{4}$ " = 1'-0"

BARRIERS, WALLS, AND FENCES

➤➤➤ **I**F MAN COULD BRING to his creations in natural parks the protective coloration that Nature bestows on wildlife, with how much more harmony he would endow his trespasses! One particularly longs for this quality in barriers, herein considered to embrace obstacles and obstructions to automobile travel—stone walls and wood fences, guard rails and retaining walls. These are unavoidable necessities in parks, generally so extensively required that any treatment short of the most skillful is a source of quick contamination to natural beauty into the farthest reaches of the area.

For this reason they deserve to be planned thoughtfully and to be constructed with ever alert willingness to adjust the predetermined treatment to conditions actually encountered in the field. The contrary approach, the attempt to warp conditions of site to some blueprint treatment of barrier or retaining wall, usually leads to disaster. Natural quality is so ready to vanish; artificial quality, so prone to persist.

Barriers of stone have one basic advantage over barriers of wood. Stone is the more permanent, a fact which often predisposes its selection as the material for use. The claim of permanence, however, should not alone determine the choice of stone over wood; each must be further considered for its native suitability. Stone imported into areas to which no stone is native seems always inappropriate. There are parks where native stone suitable for building is not present, yet the landscape is of definitely stony character. Here barriers of imported stone can be made effective if skill and artistry are brought to their contriving. But more often than not, unless barriers can be produced from native stone, it is more reasonable to waive the advantage of greater permanence and make use of wood. Timber for barriers in some localities will offset comparative lack of permanence through native abundance and consequent greater suitability and economy. For wooded areas, regardless

of stone supply, there are those who cast their votes in favor of wood, usually log, barriers, which can be made sturdy and unobtrusive and are far from short-lived.

When neither wood nor stone can stake a valid claim to being, or appearing to be, native to a region, the attributes of the area for park purposes may be logically challenged. This premise allowed, we are assured that either wood or stone will appropriately serve as material for the barriers we may require in any tract of true park potentialities. The problem then becomes one of intelligent use of whichever material Nature's bounty indicates.

One cannot visit many parks without becoming conscious of shortcomings of barrier and guard rail treatments in general. Where there is extensive need for guard rail, the use of one type of construction can become very monotonous. This is especially true if the construction is not utterly simple, or is too mathematically precise. Miles of stone barrier with crenelles and merlons of fixed length and height ticking off on the consciousness with pendulumlike routine seem almost to infect Nature itself with dull monotony. Better far to borrow something of Nature's variety. If it is desired to avoid the tiresome regularity of an unbroken coping line, it is merely choosing a different monotony to introduce a system of regular and repetitious breaks into the silhouette. Changes in coping levels to present varying lengths and varying heights are much more in the rhythm of Nature.

There are parks wherein the very extent of necessary guard rail seems to cry out for the variety of more than one type of construction. This is not to suggest merit in a hodge-podge of barrier treatments in one area, or in close coupling two widely different types. But where stretches demanding guard rail construction are separated by distances requiring none, occasionally to introduce variety for an isolated stretch would seem to be well reasoned.

A long stretch of elaborate guard rail, not only offends and distracts the viewer, but detracts from the view in direct proportion to its complexity of character. Probably the guard rail most generally satisfying to the eye, and as practical and economical as any, is the log barrier hub cap high supported on log posts at the joints. Logs and supports must be first of all of ample diameter, for flimsiness here, as in a bridge, registers adversely on the consciousness. Wood supports below grade should be treated with a preservative to prolong their life. They should extend deep into the ground so as to be truly effectual under impact.

Unpleasant indeed is the barrier of bowed, contorted logs that twists and writhes in its course like an attenuated corkscrew. Just as disturbing is the log barrier that bumps along at the roadside haphazardly rising high above the grade, then dipping almost to meet it. The log barrier should flow along parallel with the grade of the roadway if it is to be harmonious in the picture.

It is possible to detail the log guard rail so that when one section is broken the adjoining sections are unaffected either by reason of the accident itself or the ensuing operation of replacement. These will be favored wherever the limiting of maintenance costs must be considered. Barriers designed with wood rails that build into stone piers usually require an excessive amount of labor when replacement of a broken rail becomes necessary.

The ideal barrier treatment along certain roadways would be guard rocks, bedded deep in the ground in naturalized groupings spaced at irregular but effective intervals. This has been attempted but never, in the examples noted to date, with the measure of success held to be possible if executed with more skill and feeling for natural values.

In his well-presented *Camp Planning and Camp Reconstruction*, issued by the United States Forest Service, Dr. E. P. Meinecke discusses the choice and use of obstacles, obstructions, and barriers in relation to the principles of camp planning. So much on the subject of barriers therein contained is applicable to their proper use in parks, beyond the confines of campsites, that careful study of Dr. Meinecke's work is recommended.

One of the difficult park problems is the blending of a masonry barrier or retaining wall to a

rock outcrop which it surmounts or abuts. The results in general seem to indicate failure to sense that skillful blending of the man-made to the natural was of the essence of the problem, or else that skill was lacking. When the transition is so handled that the precise limits of Nature's handiwork and man's blur to the eye's satisfaction, the accomplishment is praiseworthy.

Of particular import is the wall or fence that adjoins the entranceway. Unless it is to be completely planted out, something of the flavor of the entrance structures should be given it. The stone wall so typical of New England, New York, and other localities, and the snake fence once so widely distributed through the Middle West have the advantage of long familiarity and deep significance to us. Because these bring subconsciously to mind the very values that parks seek to recapture—open spaces, unspoiled Nature, release from cramped and artificial existence—they might well serve as a far more useful instrument than they have to date in our hands.

Unquestionably there are sometimes required in natural areas barriers that must forego protective coloration to warn forcefully of danger ahead, particularly to the motorist. Barriers and obstructions, purposed to prevent traffic accidents, are not to be laughed off. They are an acknowledged, if unwelcome, necessity even in parks, and our public highways provide many precedents more or less effectual in purpose and construction. Probably reflector studs judiciously placed crowd a maximum of warning into a small space, and so interfere least with natural values. To create barriers that shout a warning is no trick at all, but to determine at exactly what locations along park roads barriers having this function are requisite and tolerable needs thoughtful judgment. To provide within a given park area neither one too many nor one too few such barriers is both the problem and the solution. It should be studied in the light of the accepted tenet that park roads exist for leisurely automobile travel only, and with an understanding that traffic speed and barrier need relate to each other. Resultantly we should find in parks fewer blatant barriers than the public highways require, and a prevalence of unobtrusive treatments.



Ponca State Park, Nebraska



Denver Mountain Parks, Colorado

WOOD BARRIERS

Common characteristic of the log barriers here illustrated is a recognition of the advantage, from a maintenance viewpoint, of unjoined units in serving to limit, and so to minimize, the spread of damage to result from sharp impact. The simplest expression of the log barrier is a row of posts, so spaced that an automobile cannot pass between them. One here shown is scaled to a modified area, the other, to a more rugged setting. The next step is a series of fabricated units, each a horizontal log with terminal supports and independent of the actuarial risks of the flanking units. Three such are illustrated.



Bastrop State Park, Texas



Devil's Den State Park, Arkansas



Woahink Lake State Park, Oregon



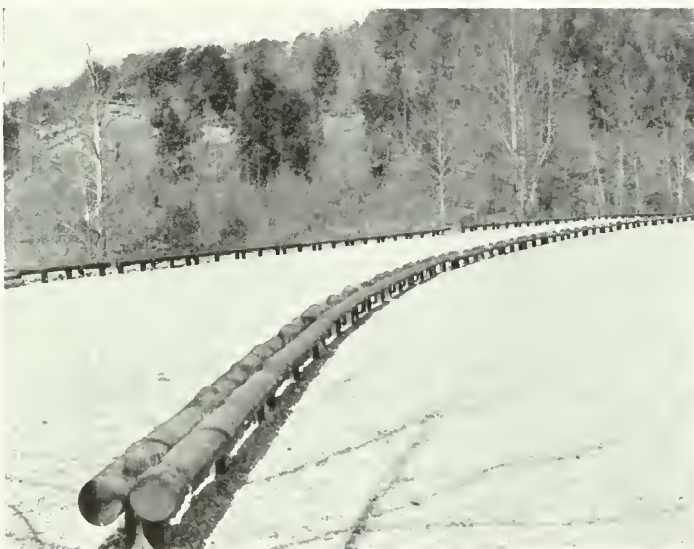
South Mountain County Reservation, New Jersey



Custer State Park, South Dakota



Mohawk Metropolitan Park, Tulsa, Oklahoma



Cumberland Falls State Park, Kentucky



DuPage County Forest Preserve, Illinois

WOOD GUARD RAIL AND FENCES

Here is pictured low guard rail into fence in slow motion—guard rails to the left, fences to the right, and the binding margin the line of cleavage. Above are typical examples of the continuous log barrier riding atop supports, next, in counterclockwise progression, the barrier log bolted to the side of the supporting posts, then a doubling of the horizontal member, and finally a doubling of the supports.

The take-off into fences begins at upper left of the right hand page with an increase in normal



South Mountain County Reservation, New Jersey



Cook County Forest Preserve, Illinois

guard rail height and the addition of a buffer rail at hub cap height, a very practical provision in limitation of maintenance. Next, now reading clockwise, is a variation of this idea, followed by three fences that have lost all trace and, probably due to location, all need of functioning as barriers to vehicle traffic. The fence that combines stone piers with wood construction is more pleasing than practical. The wood members will eventually decay, and replacement of them, because of the connection with masonry, will be a troublesome matter.



Devil's Punch Bowl State Park, Oregon



Mount Penn Metropolitan Reservation, Reading, Pennsylvania



Caddo Lake State Park, Texas



Quartz Mountain State Park, Oklahoma



Devil's Den State Park, Arkansas



Tucson Mountain Park, Arizona

ROCK BARRIERS, CURBS, AND WALLS

Three illustrations at upper left picture employment of rocks as a roadside barrier in semi-natural-istic distribution—always seemingly very difficult to execute and here better done than usual, especially so at Quartz Mountain State Park. At lower left is a related barrier, rather more of a wall but still quite informal and disclosing the use of but little mortar. This and the barrier to the right of it feature a buffer curb that permits pedestrians to pass between parked automobiles and the barrier proper.

Other examples on these facing pages are gen-



Petit Jean State Park, Arkansas

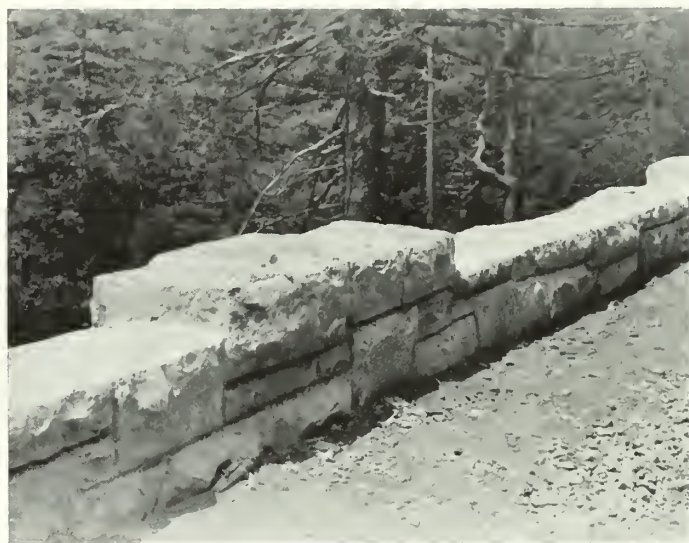


Rocky Mountain National Park

*Crater Lake National Park**Yellowstone National Park*

erally typical of protective masonry barriers laid with mortar. For the most part these are crenelated. In masonry technique there is considerable range of character.

On the next following page stone curbs and walls are paraded in variety. The low formal curb reflects fittingly its location in a groomed metropolitan area; the other curbs typify surroundings less intensively used, settings more primitive. All the walls pictured in the right hand tier suggest modified and mild country in great contrast with most of the landscape to be seen on this present page.

*Great Smoky Mountains National Park**Grand Canyon National Park**Turner Falls State Park, Oklahoma*



Cook County Forest Preserve, Illinois



Greenwich, Connecticut, Eric Gugler, Architect



Voorhees State Park, New Jersey



Butler Memorial State Park, Kentucky



Boyle Metropolitan Park, Little Rock, Arkansas



Cook County Forest Preserve, Illinois

AS DEVELOPMENT of any preserve for recreational use proceeds there is bound to be coincident multiplication in the number and kinds of required signs and related objects. If their purpose is directional, designative, regulatory, or cautionary, they are classified as "Signs" in this compilation. If their intent is to be informative of matters of historical or natural interest pertinent to the park area, they are herein termed "Markers" and, being thus incident to cultural recreation, they are discussed along with structures which facilitate that phase of recreational pursuit.

Nothing in parks, unless it be the entranceway, offers wider legitimate scope for individuality in conveying the characteristics or background of the particular area than the signs and markers. These can be the embodiment of those rare and distinguishing features that have dictated the establishment of the park—park motifs-in-miniature.)

Well-keyed to an historical period are the signs at Morristown National Historical Park. Here of course the theme is the Revolutionary era.

A visitor on pilgrimage to the reconstructed village of Lincoln's young manhood in New Salem State Park, Illinois, is subtly put in receptive and reverent mood for the illusion of a midwestern backwoods village of the 1830's by the very character of the stylized signs and markers. The black, uncertain lettering on white background, in its hand-made irregularity and wavering course lines, recalls the crude typography of the newspapers and handbills of the period and place. Instantly imagination is in pitch, and understanding in tune, with the melody about to be resung for us.

The number of signs actually purposeful in any area and the strategic placing of them should be thoughtfully determined. Signs too generously provided quickly bring protests from those who crave their Nature uncluttered. A shortage of directional information will annoy those who have neither time nor liking for groping their way

along roads and trails without benefit of adequate sign service.

A proper scale in the structural members of a sign is especially to be desired. In such a minor item as a sign it is obligatory wherever possible to evidence the employment of native materials. When the trees on an area are stunted or a second growth, it is unfitting to import massive materials for signs that will sharply accent the deficiency of the natural surroundings. It is equally inappropriate to underscale the structural members of a sign placed in an area of large trees.

The scale and legibility of the lettering employed on signs also merit careful consideration. The legends of cautionary and directional signs, more than those of other purpose, call for terseness and instant legibility at a proper distance. Hence the scale of letters reading "Sharp Curve", "Stop", "Low Water Crossing", and the like is subject to standards entirely different from a lengthy recital of rules for campers or picnickers. However appealing and appropriate in respect to an area may be the qualities of quaintness and individuality in stylized lettering, legibility has the call over other considerations for all signs of cautionary intent.

Where there is need for signs in great numbers as in parks and park systems of vast extent, cost and durability are matters of budgetary importance. The well-considered sign will be sturdy. It will "read" well and continue to do so with the least maintenance expense. The metal sign with baked-on enamel lettering may win the pennant in the Minimum Maintenance League, but in the Park Character League it surely rates what the sports scribes refer to as the "cellar position." Lettering painted on wood must be frequently renewed. This adds to maintenance charges. The renewal of lettering painted on a flat surface is painstaking work. If the lettering be initially incised, or embossed by the blow torch and template technique of burning away the background, the

renewal of the paint on the letters is more quickly done because there is a definite guide for the painter's brush.

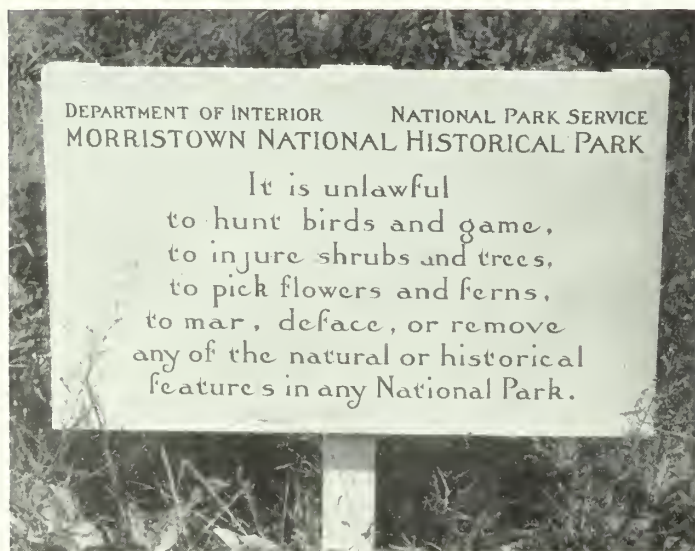
Lettering by burning, avoiding all use of paint, has been done in many parks, but probably nowhere on the scale or with more successful results than in the metropolitan mountain parks of Colorado. So many signs were required in those areas that it was found practical to make heavy sheet iron stencils of a selected alphabet in several sizes and burning irons fashioned to fit them. The desired lettering is marked out on the wood panel only to insure proper spacing. From this point the making of the sign is a mechanical operation. The stencils are placed in their proper position and the letters burned into the wood with the hot irons to a depth of about three-quarters of an inch. This produces signs legible and durable. Barring an act of God, like a cyclone, or assault by that instrument of Satan, the initial carver, signs like these promise long life.

The jackknife vandalism to which all park construction is subject can be somewhat checked in the case of signs by the practice of placing them either well below or well above the convenient working range of the jackknifer. This most vulnerable stratum is between three and six feet off the ground. In spite of all the evidence in our parks to the contrary, this type of predator is a

physical, as well as mental, sluggard and is likely to think twice (we flatter him) before he will stand on his head or shinny up a post to accomplish his scandalous, vandalous ends.

Twin to the jackknife pest is the souvenir hunter. Signs too appealingly picturesque and easy to get at and carry away fall prey to his pack rat instincts. His depredations put very definite limits on what it is within reason to attempt in the way of signs.

The day when the quintessence of naturalism for park signs was to paint them on boulders and cliffs is within the memory of many of us. Happily our developing sense of fitness has had a swing away from this sort of thing. The utter inappropriateness of nailing signs to trees is also better understood in the light of today's park-mindedness. Perhaps a warning should be sounded against a noted recent tendency to bring to the park sign something of modern, commercial, eye-arresting technique. By no means need the park entrance sign seek to compete with the 24-sheet cigarette poster farther down the road nor is there merit in three or four messages conveyed by as many different signs wherever all might logically be accumulated to one sign. Several sign groupings that successfully exemplify this point are included among the illustrations on the following pages.



Morristown National Historical Park



New Salem State Park, Illinois



Fort Dupont, Washington, D. C.



Fort Dupont, Washington, D. C.

LOW HORIZONTAL SIGNS

This page and the two pages next following demonstrate structural simplicity in sign devices—single log in horizontal or vertical position. The recumbent log is satisfyingly unobtrusive but unless vigilantly tended can be quickly lost to view where vegetation grows rapidly. The “To the Lodge” sign lacks painfully a ground cover to obliterate its miserable rock garden foreground. Bark left on structural logs is never to be countenanced—well, hardly ever. The very character of the Lincoln Log Cabin State Park sign would vanish along with the bark. The alternative—probable replacement of this sign every few years—seems here justified.



Gull Point, Okoboji State Park, Iowa



Saratoga Hot Springs State Park, Wyoming



Lincoln Log Cabin State Park, Illinois



Garden of the Gods Park, Colorado



Boyle Metropolitan Park, Little Rock, Arkansas

POST SIGNS

Sturdy durability is the keynote of signs of this type. A genuine "sign" language, understandable and brief, is the ingenious feature of some here shown, and fittingly simple carving brings interest to others. Burned lettering is almost the rule and the effectiveness of deep burning is well demonstrated. It seems to be proved by this group that the singular appeal of an unperfected alphabet is



Garden of the Gods Park, Colorado



Rib Mountain State Park, Wisconsin



Garden of the Gods Park, Colorado

more appropriate to the open spaces than the stodgy professional touch.

The cluster of posts at Boyle Metropolitan Park is at once sign and entrance pylon and has interesting mass and considerable individuality. The “Her-Him” sign at this same park is also more than a sign—it is light-hearted mutiny against the drearily stereotyped.



Garden of the Gods Park, Colorado



Boyle Metropolitan Park, Little Rock, Arkansas



Boyle Metropolitan Park, Little Rock, Arkansas



Zilker Metropolitan Park, Austin, Texas



Saguaro Forest State Park, Arizona

SINGLE POST AND CROSS ARM SIGNS

"Sign" language persists in the example at upper left, as a footprint instead of the hackneyed index finger points the way. Next right is a sign in character only in the Southwest, for the upright is of cactus. Failure to remove bark from the supporting posts of the two signs to the left is hardly subject to censure. A tousled picturesqueness is added for so long as the bark shall remain, and any resultant acceleration of decay would be inconsequential.



Longhorn Cavern State Park, Texas



Lake Worth Metropolitan Park, Fort Worth, Texas



Turner Falls State Park, Oklahoma

Where there is no vegetation threatening to obscure them, signs are best kept low, as exemplified by the "Trail" and "Trail to Falls" signs. The "Fillius Park" sign rates a very high score; it seems to have everything, including an interesting spiral twist of upright that is a unique talent among signs of our acquaintance.

The sign at lower right has sturdy mass, and displays a competence for directing traffic in all directions at once to make the most accomplished traffic officer envious.



Denver Mountain Parks, Colorado



Dolliver Memorial State Park, Iowa



Lake Worth Metropolitan Park, Fort Worth, Texas



Sequoia National Park



Petit Jean State Park, Arkansas



Santa Rosa County Park, California

SINGLE POST AND BRACKET SIGNS

Here are signs fabricated of post and directional arm, the top row in the singular, shall we say, and the bottom row in the plural. As a group these display a wide range of scale and considerable variety of pattern.

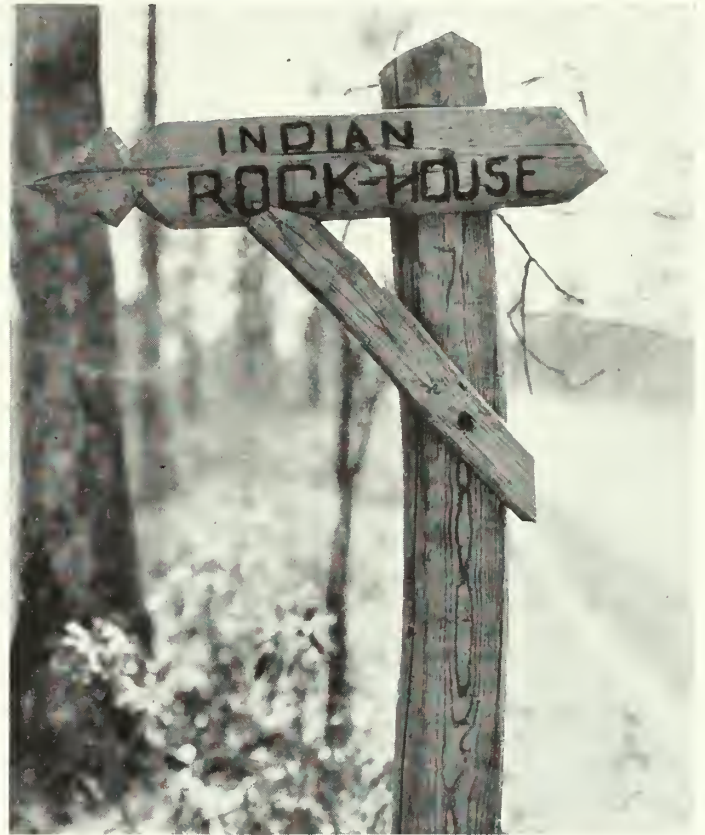
There would be gain of legibility if the incised or burned lettering of several examples were deeper, or painted in a sharply contrasting tone. Because of their hand-hewn weathered character the two signs in Moran State Park might almost be survivals of pioneer days. The wraithlike support of



Deception Pass State Park, Washington



Moran State Park, Washington



Pickett State Forest, Tennessee

the sign illustrated at lower right calls to mind the tree forms of an Arthur Rackham drawing. It is here shown because it is an interesting "sport", fantastic within bounds. If it were often repeated it would probably annoy.

It is a matter for regret that it is not possible to show all subjects of a given group in a proper scale relationship to each other. The reader is warned of the tendency throughout this publication to a certain unavoidable distortion of the true scale of many of the grouped examples illustrated.



Moran State Park, Washington



Crowley's Ridge State Park, Arkansas



Mount Nebo State Park, Arkansas



Boyle Metropolitan Park, Little Rock, Arkansas

SINGLE POST AND SUSPENDED SIGN

This sign group parades the simple hanging sign, reared on a single supporting post. The urge to capture naïveté and rusticity in a park sign should not trap us into using letter forms not readily legible. These qualities are best sought for in and confined to the form of the sign panel itself and the upright supporting member. The alphabets employed in the signs of the enframing illustrations follow generally familiar forms without prejudice to wilderness character.



Wildcat Hills Game Reserve, Nebraska



Humbuc Mountain State Park, Oregon



Crowley's Ridge State Park, Arkansas

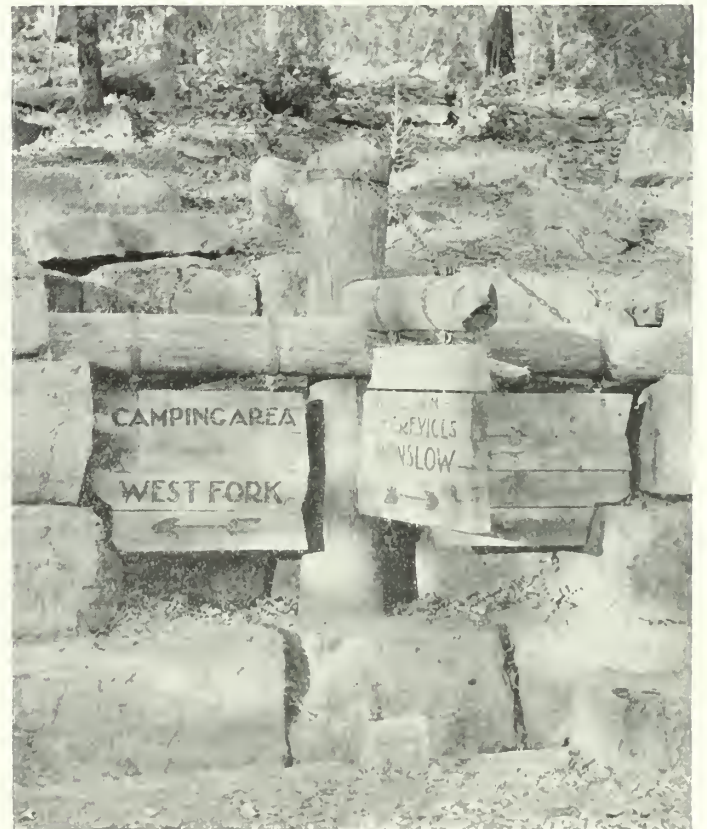
Comments disparaging to the subjects here shown would be difficult to frame. The fine entrance sign at Crater Lake National Park merits a better photograph than we are able to show. The head-on approach to the multi-directional sign at Devil's Den State Park is by way of a bridge. The recessed setting in a retaining wall is unusual and interesting, and reduces the vulnerability of the sign to the hazards of traffic.



Crater Lake National Park



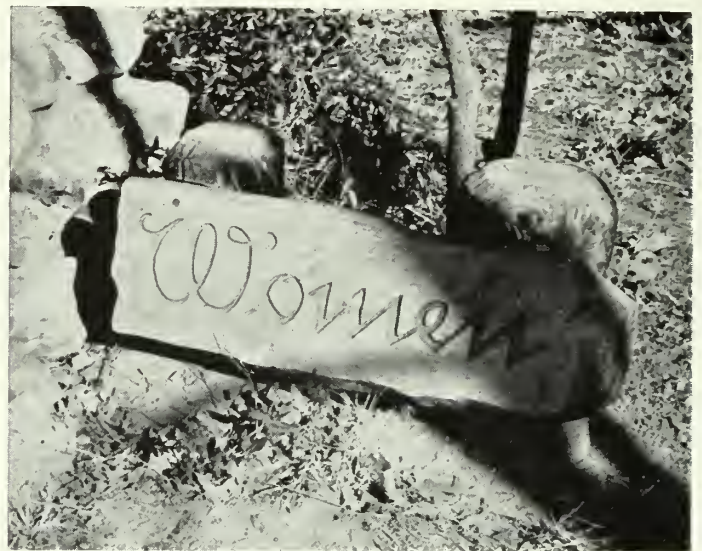
Humbug Mountain State Park, Oregon



Devil's Den State Park, Arkansas



Humboldt-Redwoods State Park, California



Robbers Cave State Park, Oklahoma



Steckel County Park, California

TWO-POST SIGNS

In general the character of the signs shown on the left hand page seems predicated on locations subjected to more or less modification of Nature. Those signs to the right characterize regions of rugged topography and heavy timber growth. Though all the signs have two supporting posts as a common factor, beyond that are wide differences.

The incised lettering at upper left and upper right of these pages appears to be excellently de-



Bronx River Parkway, New York



Virginia Kendall State Park, Ohio

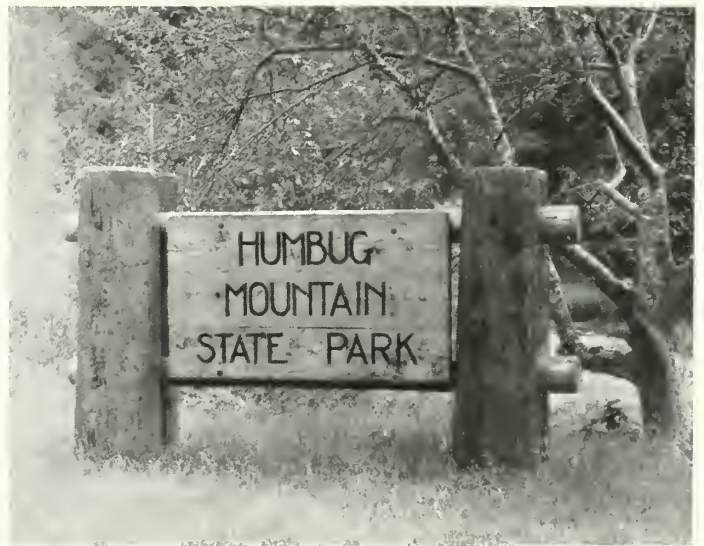


Lake Guernsey State Park, Wyoming



Wildcat Hills Game Reserve, Nebraska

signed and skillfully wrought. The greater legibility of incised letters that are additionally painted a contrasting color is demonstrated by the three signs at upper left. The painted legend of the Lake Guernsey Park sign has a nice simplicity. The staggering of the letters in the second line of the "Kitchawan Tavern" sign will have its critics. Signs like this are produced by sheet metal or asbestos templates, a blow torch, and, "for the lower line, just the right degree of intemperance", as has been said before.



Humbug Mountain State Park, Oregon



Black Hawk State Park, Illinois



Crowley's Ridge State Park, Arkansas



White Pine Forest State Park, Illinois



Papago State Park, Arizona



Caddo Lake State Park, Texas



Gull Point, Okoboji State Park, Iowa

TWO-POST SUSPENDED SIGNS

Sign panel hanging from lintel carried by two posts is the theme of the subjects here pictured. From upper left to lower right is a crescendo of scale and mass embracing suitability to almost every character our park terrain presents, not omitting desert country as represented by the Papago State Park example with its uprights of cactaceous growth. Several illustrations strikingly disclose how the best designed of signs are depreciated by immediate



Jewel Cave National Monument



Lake Worth Metropolitan Park, Fort Worth, Texas



Spavinaw Hills State Park, Oklahoma

surroundings lacking natural ground cover and low planting.

Two signs shown at lower right suggest special site considerations, presumably in the case of one, a fork in a road, which would be served well by the angled plan, or in the other, a junction of roads creating an island, which would be served by the sign of triangular plan. The vigorous scale of these is astonishing—an ingratiating fault, if fault it is.



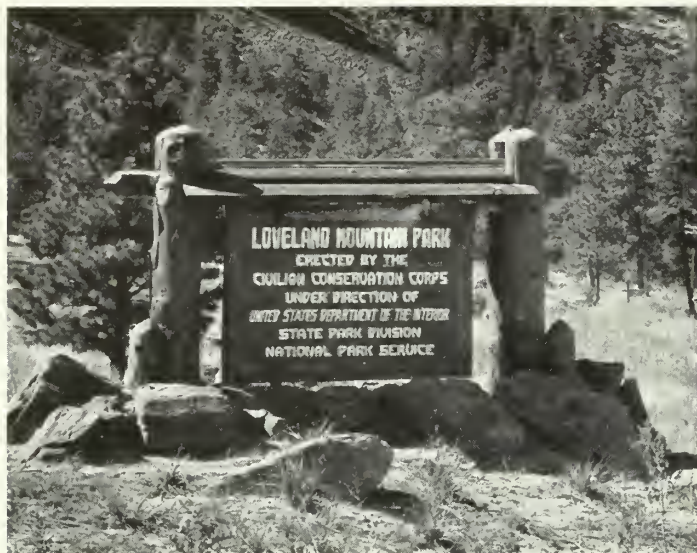
Beavers Bend State Park, Oklahoma



Mount Nebo State Park, Arkansas



Petit Jean State Park, Arkansas



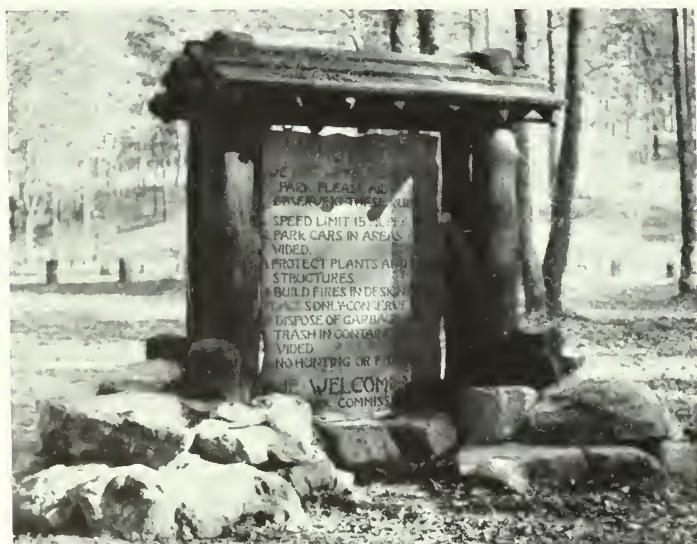
Loveland Mountain Metropolitan Park, Colorado



Mount Nebo State Park, Arkansas



Custer State Park, South Dakota



Boyle Metropolitan Park, Little Rock, Arkansas



Mount Nebo State Park, Arkansas

HOODED SIGNS

The addition of a hood above a sign panel lends prominence and importance to a sign, probably on occasion justified. The hood serves practicably and measurably to protect the lettering and other matter displayed by the sign panel from deteriorating exposure to weather.

From the form of the hooded sign it is no far cry to the typical expression of trailside nature shrine or marker. The sign directly to the left, incorporating as it does the map of a campground, is close indeed to what in this compilation has been classed as marker rather than sign.



Bastrop State Park, Texas



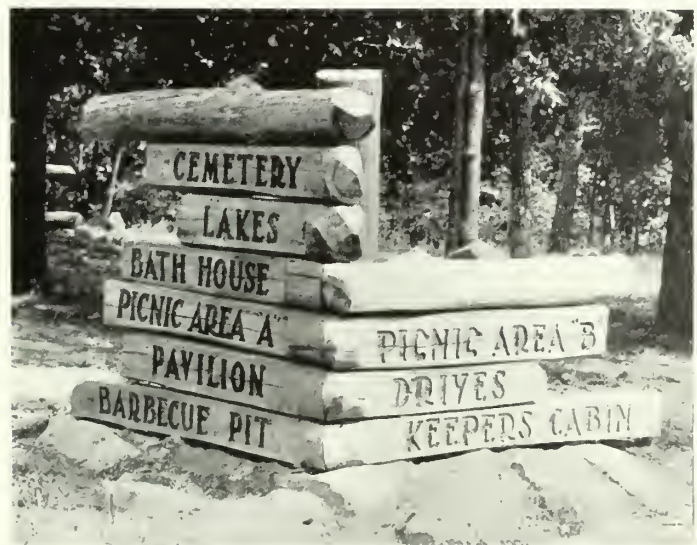
Bastrop State Park, Texas

MISCELLANY

Too novel rather than too late to classify are the "sports" of this aggregation. The metal silhouettes tell their story with a well-rendered cleverness that should silence objections from latter day Puritans. Although "charming" and "delightful" have been shunned as the plague in commenting herein on park construction, both are bestowed on the Mohawk Metropolitan Park example and are far from being a reproach. Note that the sign at Crowley's Ridge State Park is one of a trinity standing guard at the corners of a traffic island.



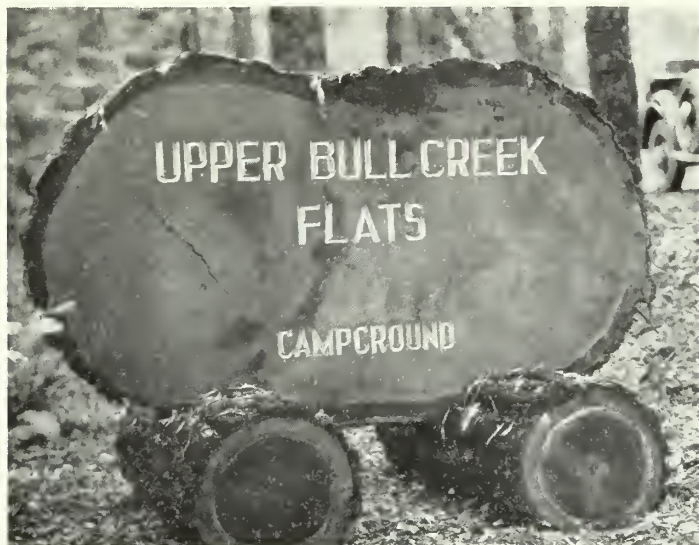
Mohawk Metropolitan Park, Tulsa, Oklahoma



Crowley's Ridge State Park, Arkansas



Millersylvania State Park, Washington



Humboldt-Redwoods State Park, California



Turner Falls State Park, Oklahoma



Casa Grande National Monument

The use of cross-grained slabs for tops of picnic tables is to be discouraged if only because these are impractical. Their use for signs is not universally looked on with favor, yet when cut from trees of impressive girth these become educational exhibits as well as signs and so gain in justification. The annular structure of a giant tree, in this case a redwood, is ever a matter of interest to the inquiring.

Strikingly characteristic of the country around Turner Falls are outcropping, folded, limestone strata marching over the hills like tombstones row on row. These break up in layers of comparatively equal thickness. This block of laminae was moved in sections from another location where it was found very much as here reerected. It is a tour de force suitable only in this particular area. The lettering is cut out of boiler plate, pegged and cemented into the limestone.

This unusual sign, hammered out of sheet copper and filled with concrete, is a clever conception. In addition to functioning to designate the park entrance, this sign by virtue of location serves as a traffic guide in separation of the in-and-out flow of traffic. The lettering of modern character is of interest. The entranceway in its entirety is shown under that section of this book.

ADMINISTRATION BUILDINGS

IF IN THE ARRANGING OF MATERIAL of this collection, a certain latitude, not to say license, could not be assumed to be granted the compiler by the readers, this heading would have little reason for being. For while if asked to name a half dozen structures justified by need within parks, a reader will probably name an administration building as one of them, he might be somewhat in a fog if asked to describe just what, specifically, constitutes one. The embarrassing question will not be pressed upon the reader. Rather will the difficult duty of seeking the answer be here assumed and herein attempted without, however, any certain expectancy of pulling a rabbit from an empty hat.

In theory the administration building is headquarters for directing effort and business management of the park area. Actually it may be a vest pocket, a desk, a room supplemented with typewriter, adding machine, safe, or some multiplication of these accessories. Frequently we find gate lodges, custodians' dwellings, community buildings, recreation pavilions, dining concessions, and numerous combinations of several functions, all termed administration buildings.

Few examples of administration buildings are known to exist as entities separate from other functions, except in national parks of vast extent. In these the need for space for the superintendent and a considerable staff engaged in the varied operations of dealing with the public and the park operator or concessionaire, keeping accounts, directing maintenance, planning the further development of the area, etc., is very considerable, and it results in a building of some size and of single purpose. In smaller national parks and monuments the combining of administration point and museum is often advantageous for the concentration of required supervisory effort that results.

It is probably usual in State parks to conduct on-the-area administration with less formality from an office attached to the custodian's or caretaker's

dwelling. Sometimes this control point is in connection with a lodge or other dominant structure in the nature of a community building; again, under conditions requiring limited contact with the public and almost constant supervision of development and maintenance, the administration headquarters may be more conveniently placed with the service group. An analysis of most combined use buildings and of the space devoted to this sometimes intangible business of administration will often demonstrate that the designation of the building as the administration building is something of a courtesy title, if not actually a misnomer.

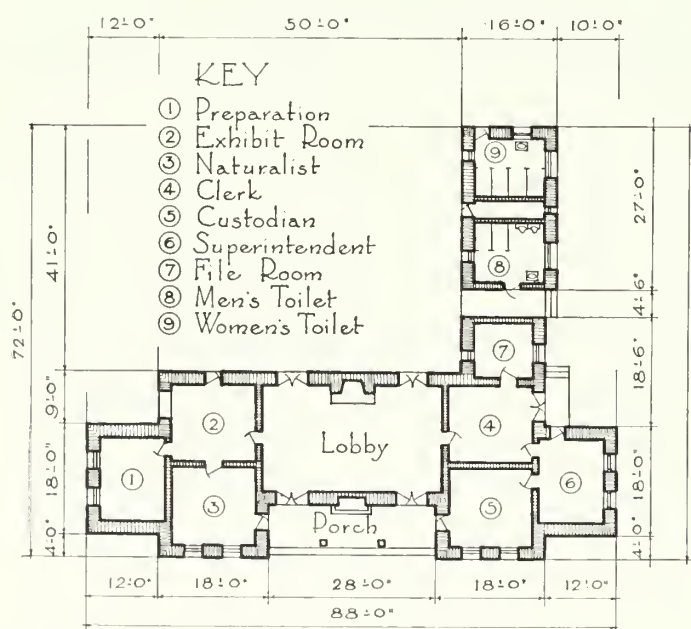
This widespread paradox exists very naturally and with some logic. It is probably proper that the point of control, the symbol of supervisory authority, should have importance, even dominance, among park buildings. It is quite pardonable that the limited space demand of administrative function should augment itself by the borrowed bulk of less significant space requirements and give name to the resulting combination structure. The tail is allowed to wag the dog with more than usual justification.

Structures dignified by the designation "administration building" sometimes tend to a prominence of location and an ostentatious treatment that arrogantly imply special prerogative to compete with Nature as the "feature" of the natural park. Such boorish behavior can no more be condoned in Park Building No. 1 than in lesser park structures.

Illustrated hereinafter are numerous buildings, one function of which is administration. Some include closely related functions, others combine facilities unrelated or only slightly related to the business of administration. Insofar as these avoid the blight of several scattered structures to result in a single structure free of pompous pretensions, the multi-purpose building masquerading as administration building is not unreasonable. Rather does it seem to be a solution worthy of encouragement.



Administration Building, Casa Grande National Monument

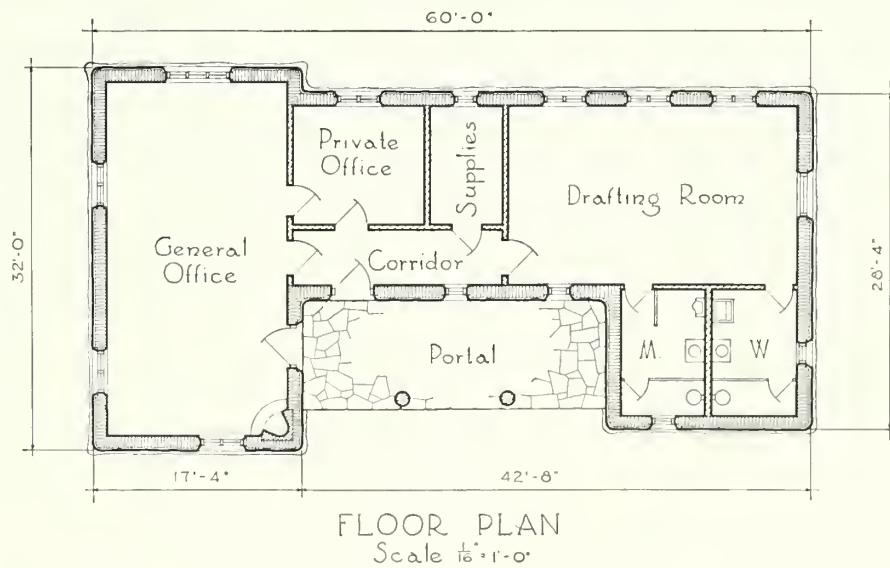


FLOOR PLAN
Scale $\frac{1}{32}'' = 1'-0''$

Adobe, in gesture to tradition, and low, in keeping with the surrounding expanse of level terrain, this building is definitely and excellently custom-tailored to the Southwest. It houses various facilities that have legitimate function as phases of park administration and conveys impressively a feeling of organized administrative authority. The architectural style is related to that of the entrance-way and entrance sign of this same park. These subjects are shown elsewhere in this collection.



State Park Administration Building, Santa Fe, New Mexico

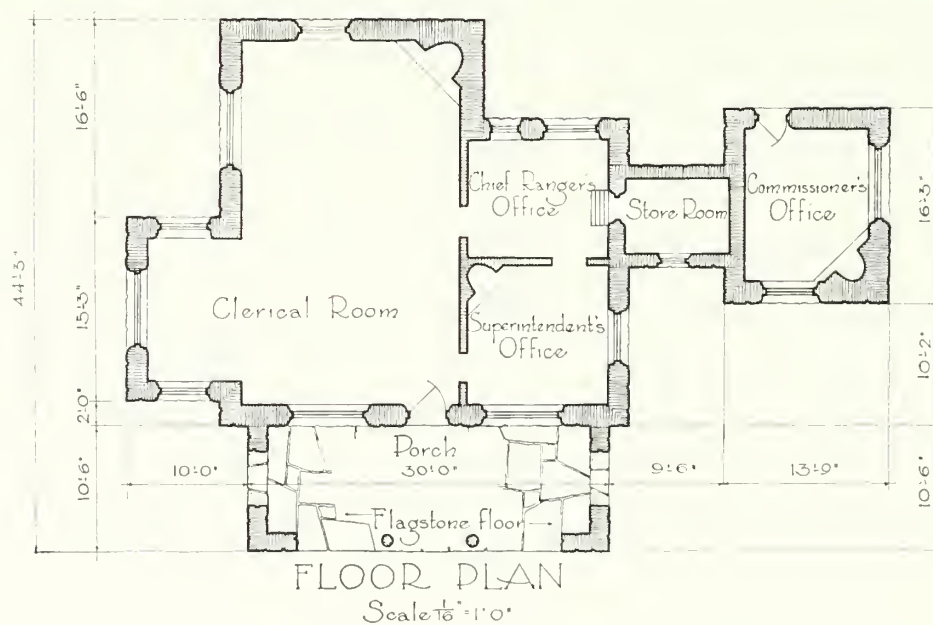


Here are headquarters from which presumably a system of State parks is administered. It carries on the traditions of the adobe architecture of the Southwest in its few and small window openings,

the projecting pole rafters, the rounding of all corners, and the shaped brackets surmounting the log posts of the recessed porch. Its location in a town explains the unfortunately cramped setting.



Administration Building, Mesa Verde National Park



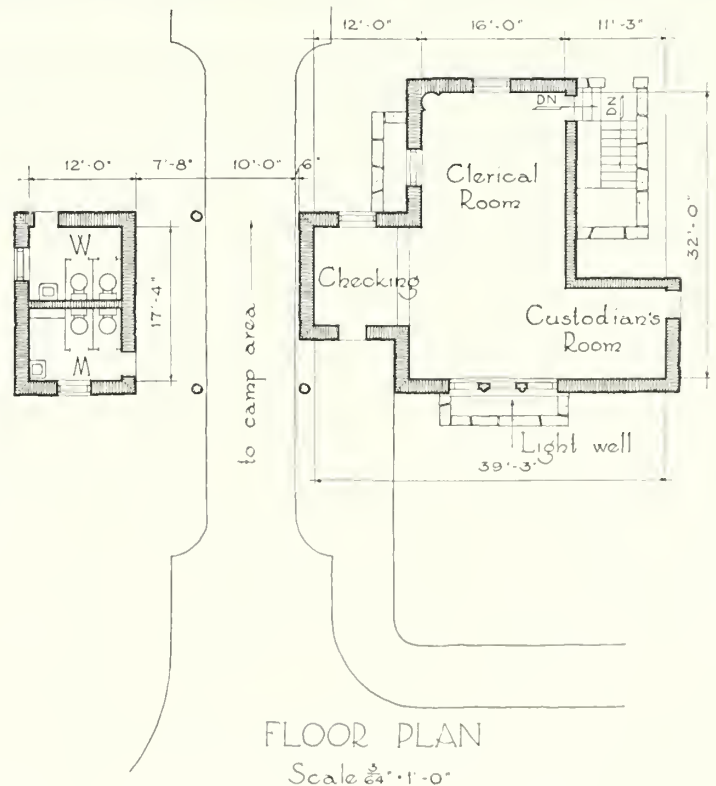
Here is exemplified that unusual park structure, an administration building that does not accumulate other functions to gain impressive bulk. Informal

in plan and exterior, it relates well to the other buildings in this national park, several of which are included under other classifications.



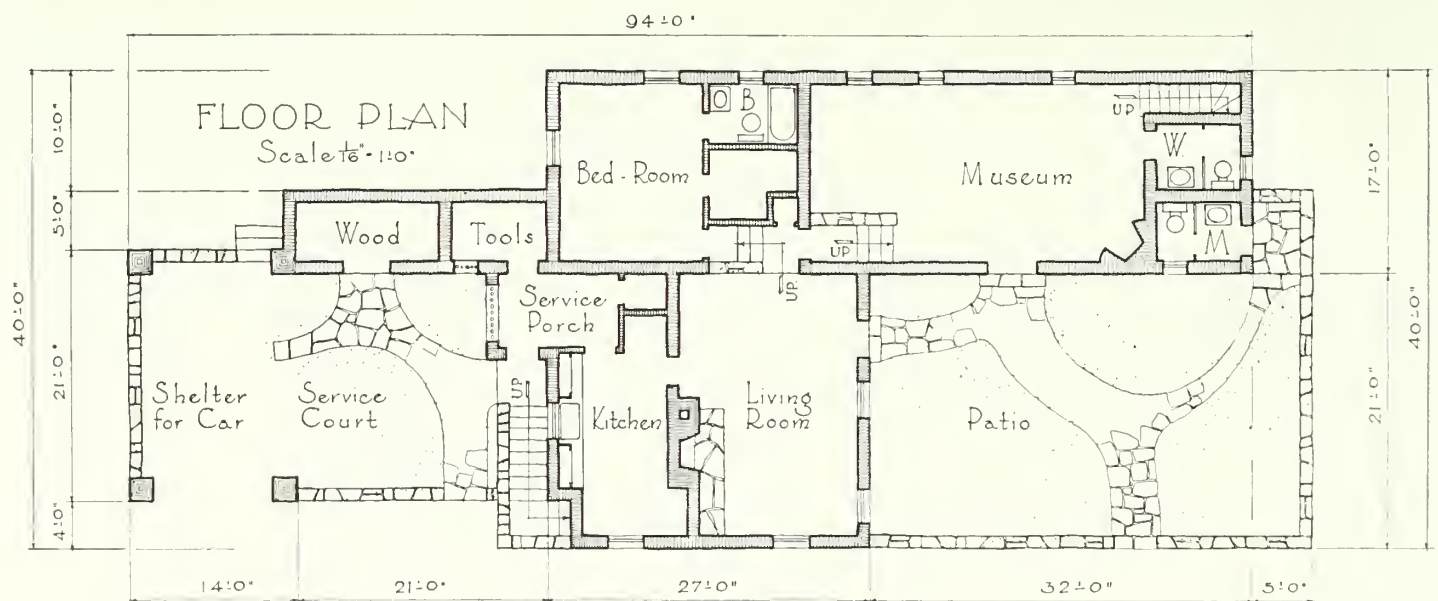
Administration Building, Bandelier National Monument

Some buildings win admiration for their very simplicity and modest size, if reinforced with good proportions and textures harmonious with surroundings. Here is one such. It is representative of structure housing administration in minimum terms. For an illustration of the meaning and desirability of singleness of architectural expression or theme in one area, the service group at Bandelier National Monument shown elsewhere should be compared with this plate.





Administration Building, Phoenix South Mountain Metropolitan Park, Arizona



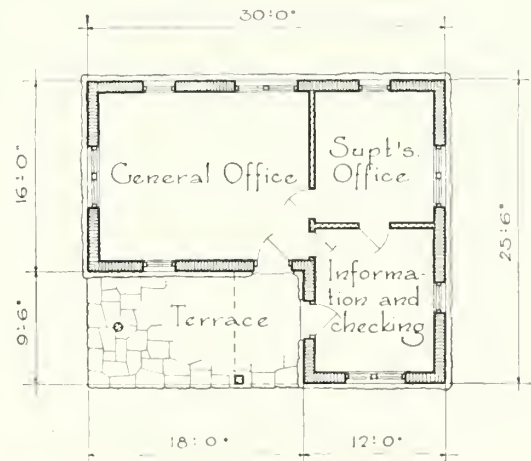
In continuing prehistoric Pueblo structural tradition this building extends the vocabulary of park architecture to include a pleasing and welcome regional expression eminently suited to the Southwest. Interest is caught by the unusual character of the masonry, the several levels of the roof, the haphazard lift and drop of the parapets, and the rhyth-

mic shadows cast by the projecting pole vigas. As is so frequently the case with administration buildings, the plan shown above does not particularly evidence administrative function. The combination of caretaker's quarters, service courtyard, and museum forms more accurately administration "point" than administration building.



Administration Building, Zion National Park

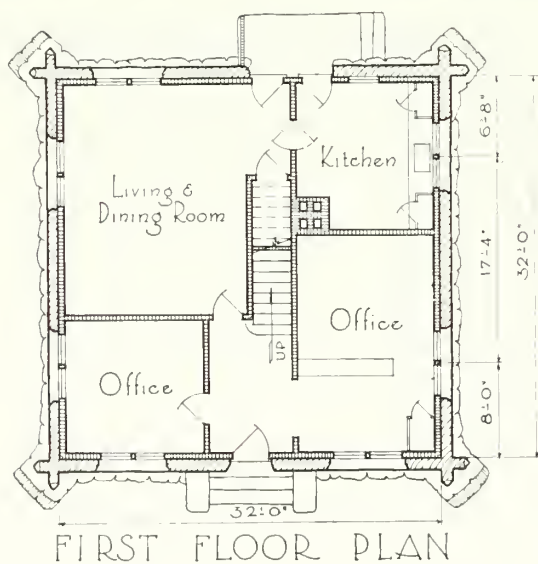
The routine functions of administration and contact with the public are here combined in a small building of straightforward plan and the appearance of fitting very well its site at the base of the towering walls of Zion Canyon. Impression is gained that in any future need for expanding administrative facilities the present building will lend itself to alterations and additions with a minimum of disturbance to existing construction.



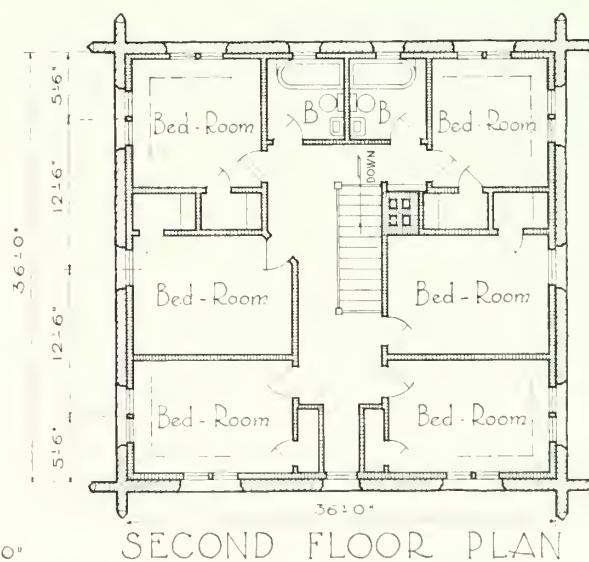
FLOOR PLAN
Scale 1/8" = 1'-0"



Administration Building, Yakima, Mount Rainier National Park



Scale $\frac{1}{16}'' = 1'-0''$



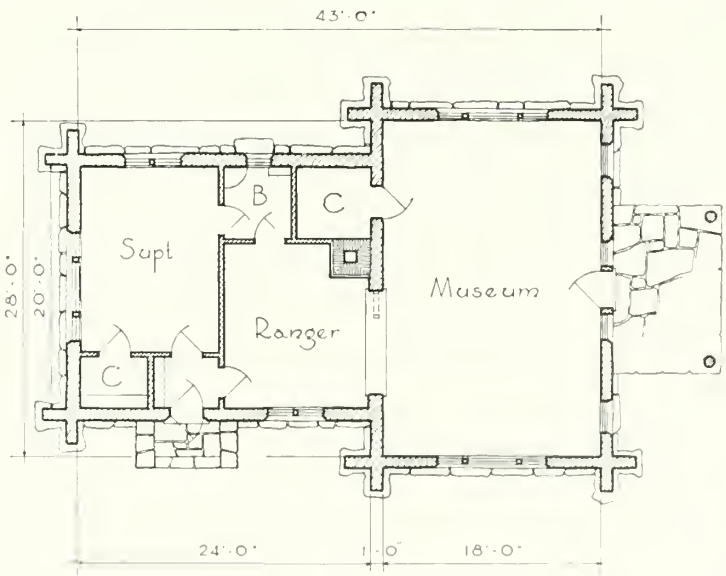
Even without benefit of the magnificent background afforded by Mount Rainier this log building would be an outstanding contribution to park architecture. Obviously, but not too self-consciously,

inspired by the early blockhouse, here is a building representative of logical and legitimate adaptation of a traditional form. The log work is neither too precise nor too laboriously rustic.



Administration Building, Bryce Canyon National Park

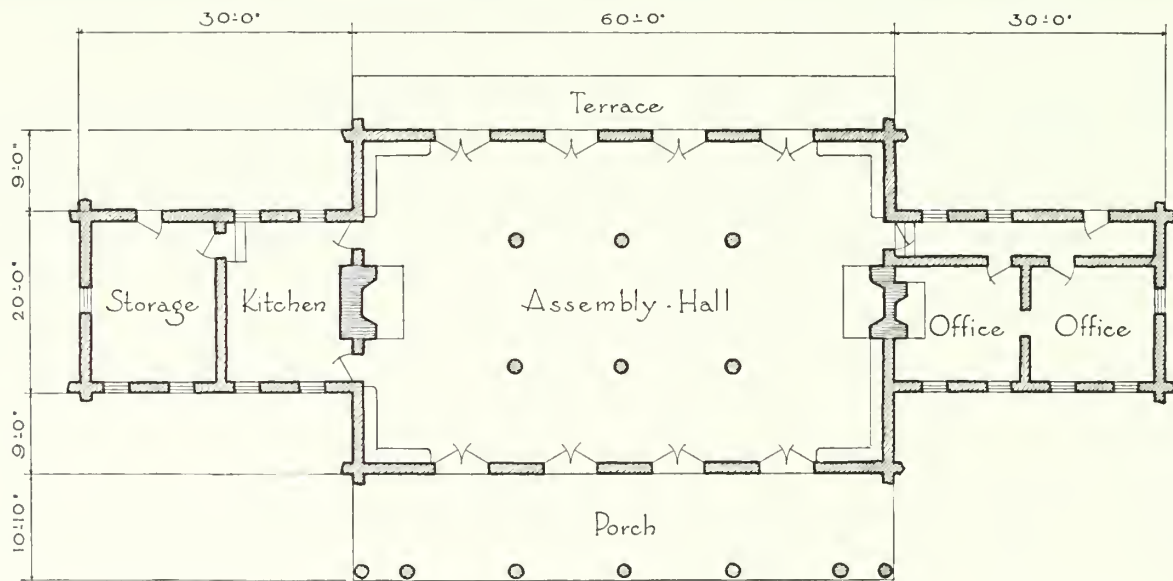
In parks not accessible to great hordes of visitors, uncomplicated administration functions and a modest museum display can often be housed in one building to practical advantage. Such is the case here. It permits a limited personnel to do double duty and accumulates into one building of suitable size space that as two buildings could hardly avoid seeming trivial and inappropriate in a park of the magnificent distances offered by Bryce Canyon.



FLOOR PLAN
Scale $\frac{1}{16}'' = 1'-0''$



Administration Building, Selkirk Shores State Park, New York



FLOOR-PLAN

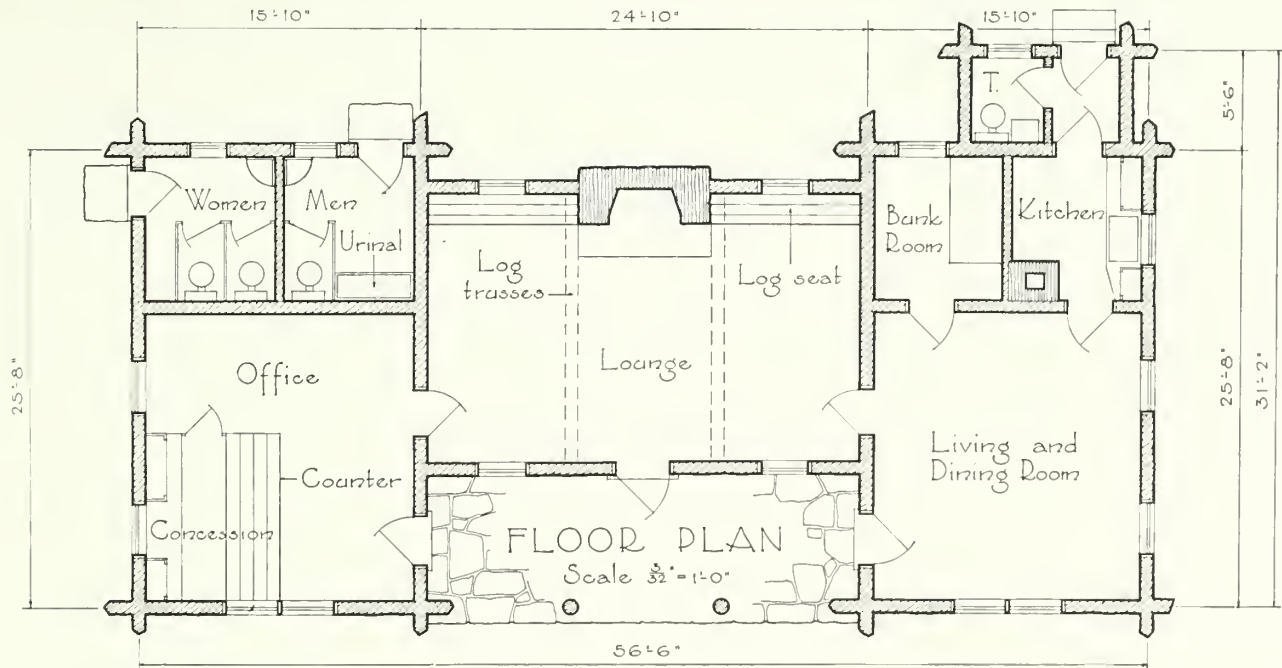
Scale $\frac{1}{2}$ " = 1'-0"

Impressive in extent for a log building and notable for the workmanship of the log construction and the broad sweep of the roof. The severity of the con-

crete base, the trivial boulder masonry of the chimneys, and the thinness of the covering material of the roof are disturbing details.

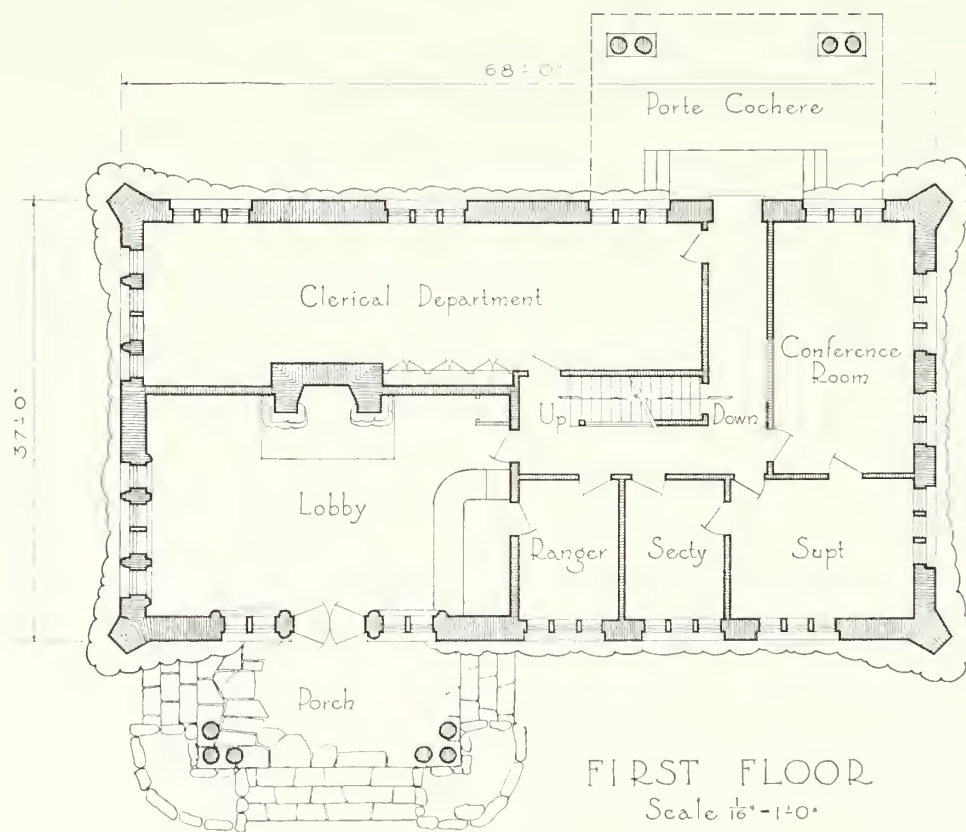
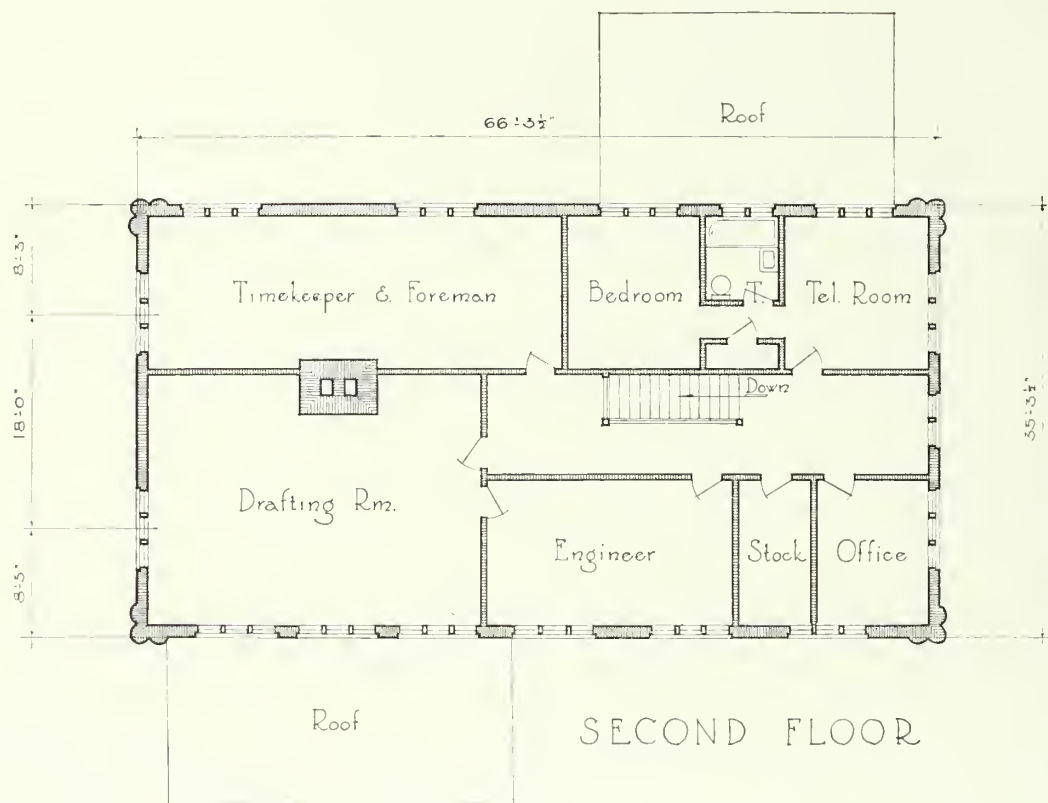


Administration Building, Mohawk Trail State Forest Park, Massachusetts



This altogether amiable building is rated a ten-strike in an area where the availability of long, straight logs is far from what it once was. The proportions and details of design and workmanship seem quite beyond reproach. Along with an am-

bitious log bridge at this same park, illustrated under "Bridges", this structure offers convincing testimony that all skilled craftsmanship in log construction did not march westward with the course of empire.

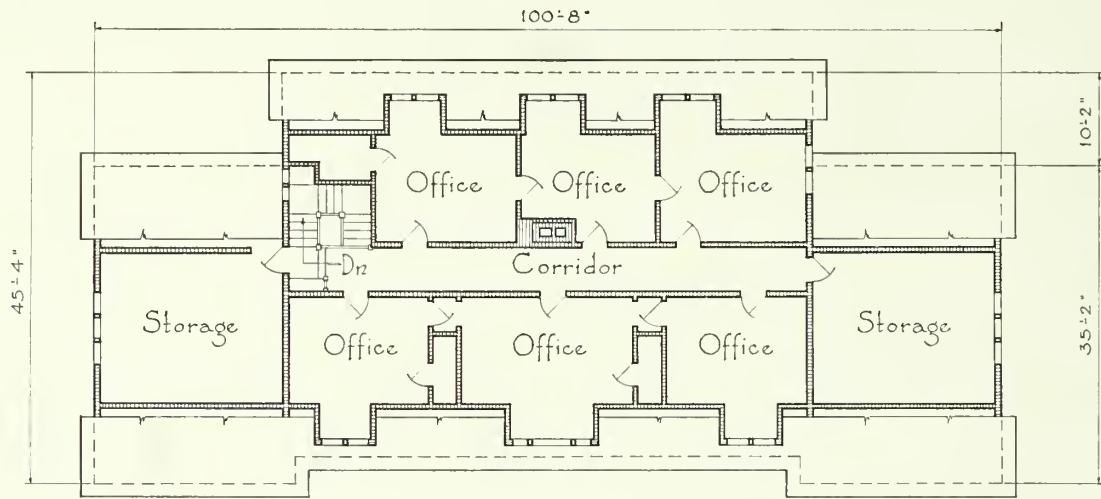




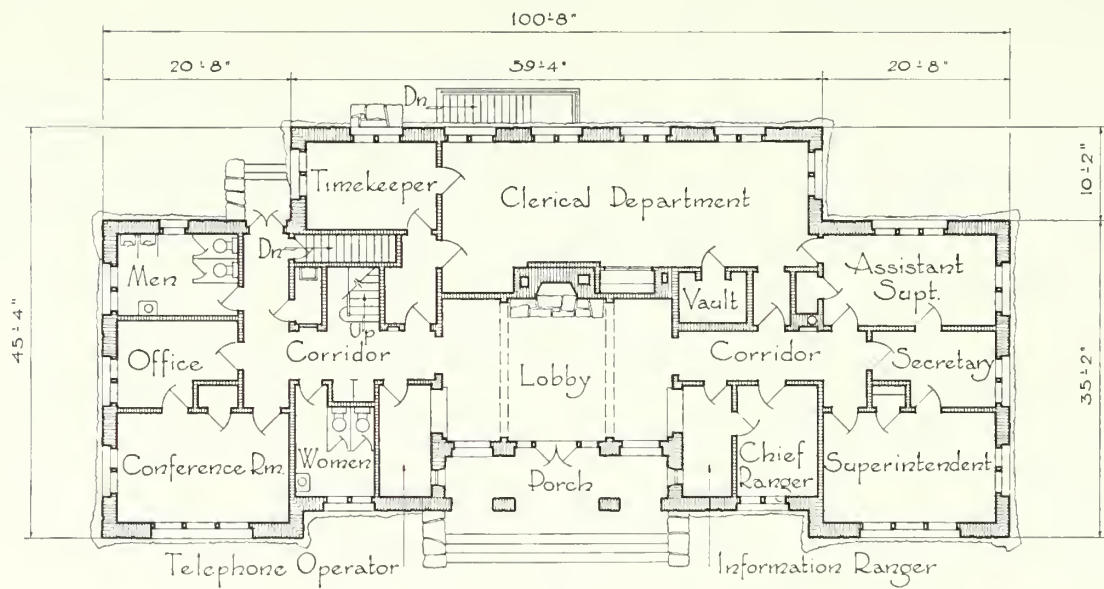
Administration Building, Longmire, Mount Rainier National Park

The plans on the opposite page exhibit the several functions that may accrue to an administration building in a major park. The employment of boulder masonry as here illustrated is usually dictated and only justified by the absence of more workable rock material within reasonable distance. However well handled, it seems impos-

sible to attain a satisfying appearance of stability. The rafters are appropriately vigorous in scale, and the blunted terminations of them are most agreeable. There is abundant provision of windows to insure a well-lighted interior without sacrifice of wall surfaces to the point where the exterior suffers in appearance.

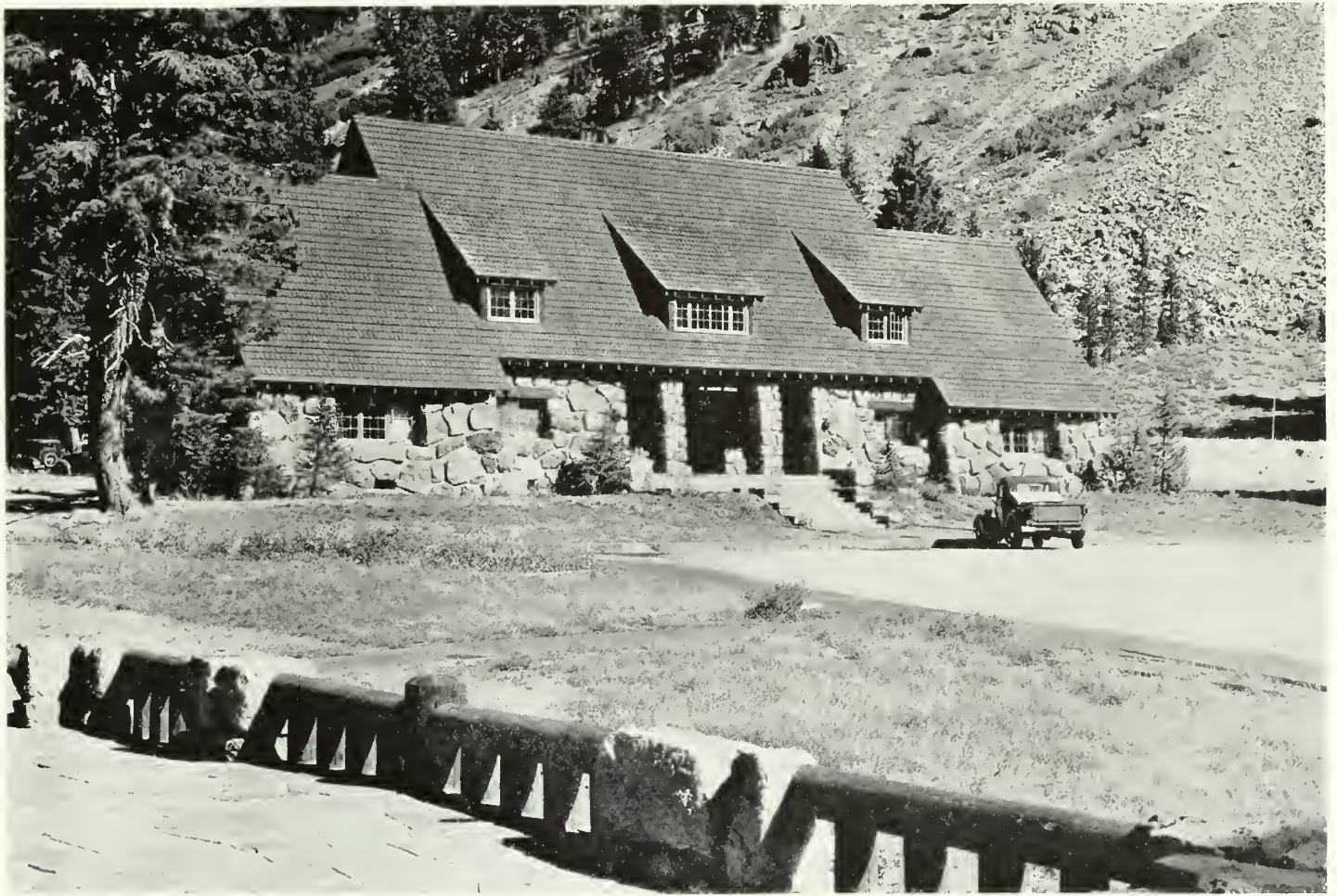


SECOND FLOOR PLAN



FIRST FLOOR PLAN

Scale $\frac{1}{4}" = 1'-0"$



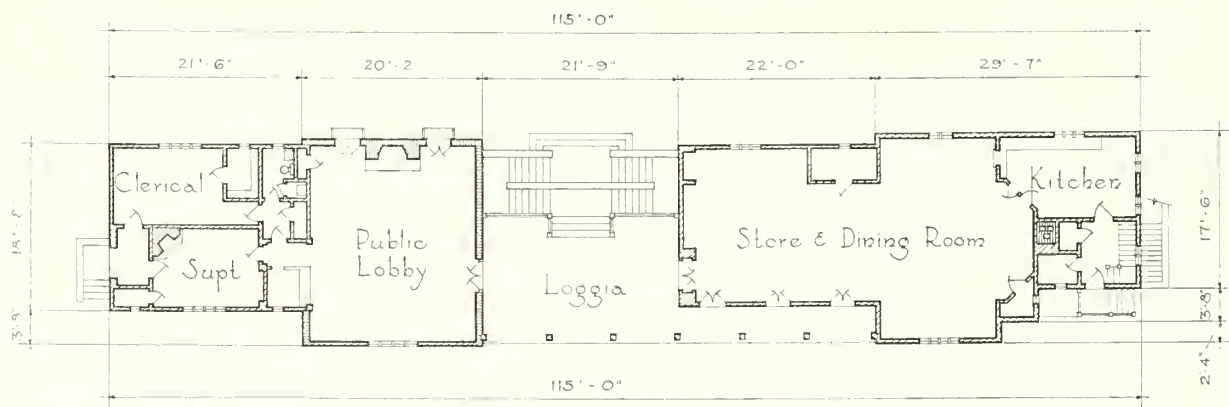
Administration Building, Crater Lake National Park

This large administration building and the example at Longmire, Mount Rainier, presented on a previous page, represent typical structural accommodations for the administrative activities and needs of a large park of national importance. First and second floor plans are delineated on the opposite page. The steep roof is dictated by the heavy snows of this area, which often accumulate and drift

to levels above the first story windows. Attention is called to the several structures for housing personnel at Crater Lake, illustrated under "Superintendents' and Staffs' Quarters", for the study of a pervading unity of structural treatment, the usual recommendation for all buildings of a particular area. Massive boulder masonry, stained timbers, steep roofs, and dormer windows are common to all.



Administration Building, Wind Cave National Monument



FLOOR PLAN

Scale $\frac{1}{4}$ " = 1'-0"

The architectural expression found here departs in materials and manner of use from what one almost comes to expect in park construction. The widening of vocabulary is welcome, and this particular treatment is well undertaken in surroundings which are comparatively unwooded. The

long-drawn-out, narrow plan produces an exterior which gives the illusion of a building low in height. This also seems a proper effort in the setting pictured. The plan indicates the many related functions that accrue to the administration of a park domain of considerable extent.

SUPERINTENDENTS' AND STAFFS' QUARTERS

➤ **O**FTEN family living quarters for the park superintendent, custodian, or caretaker and other staff members can with propriety reflect in externals the pioneer homesteads of a locality. And being somewhat similar to the pioneer dwellings in most essentials, the modern housing can recall traditional lines without too evident struggle, not always true of adaptations in which the old forms and the modern needs are less closely related. Subject to the dictates of regional influence, we may appropriately house park personnel in structures which derive from the log and stone cabins of the pioneer, from the Spanish, Pueblo, and several manifestations of the Colonial, and from many other traditional structural expressions born of history, local materials, and climate.

The typical problem is simply an efficiently planned five- or six-room rural dwelling that stresses the importance of fitness to environment. Climate, comfort, traditions, and above all the budgets of the park and of the occupant, whether superintendent or naturalist, warden or workman, should be duly weighed.

Where the park personnel group is comparatively large, it is sometimes deemed expedient to resort to small apartment buildings. Although such concentration sacrifices something of park character by bringing an urban solution into a park, it is in accord with the tenet that a single building is better than many minor ones.

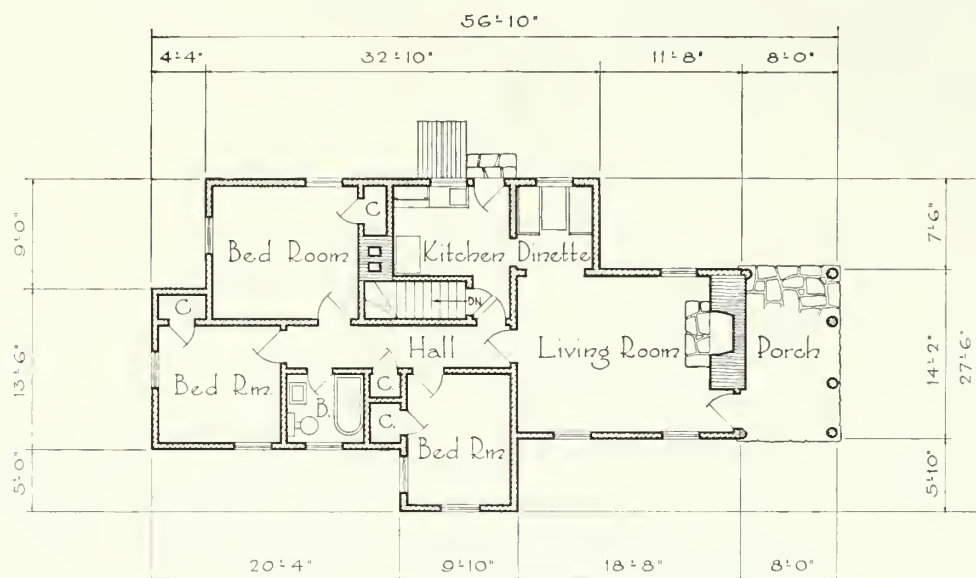
In large, isolated, yet heavily attended parks the problem of housing groups of unmarried employes, especially those only seasonally employed, is solved by a barracks or dormitory building. A rangers' club providing comfortable and wholesome living conditions contributes much to the esprit de corps of this group of employes. In Yosemite National Park is a notable example of this institution, made possible by the generosity of Mr. Stephen T. Mather, the first Director of the National Park Service.

Comfortable, well-maintained living quarters in which the occupants can take personal pride will undoubtedly find reflection in the attitude of each employe toward maintenance of the public area. Patched-up, ramshackle living quarters can influence the standards of general park operation adversely.

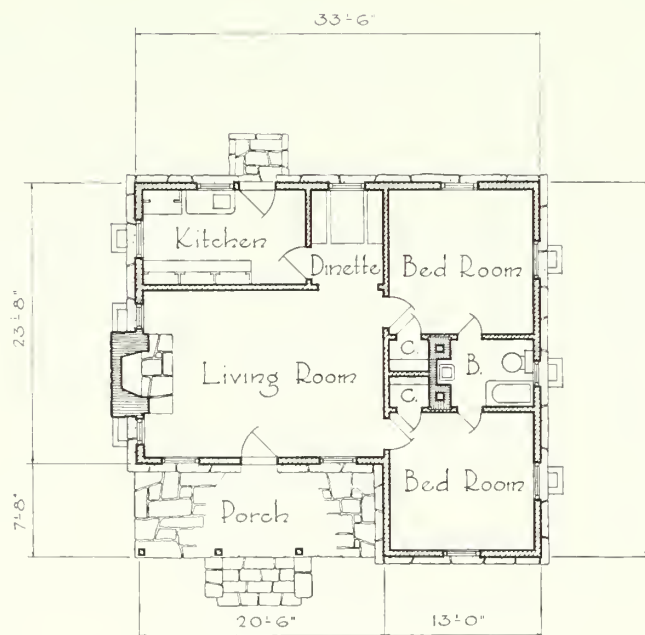
Inasmuch as quarters in a final analysis supplement the employe's salary, it seems only fitting that quarters and salary be reasonably scaled to each other. Neither commodious residence in lieu of a fair salary, nor more generous stipend in lieu of decent living quarters is a satisfactory substitute for living quarters and salary in appropriate relationship. A more general understanding of this would remove a frequent cause of dissatisfaction.

Sometimes, for purposes of control, economy, or other reason, living quarters are combined with other park needs in structures, such as administration and concession buildings, entranceways and checking stations. In a small park this is logical, avoiding as it does small independent buildings ruinously crowding the area.

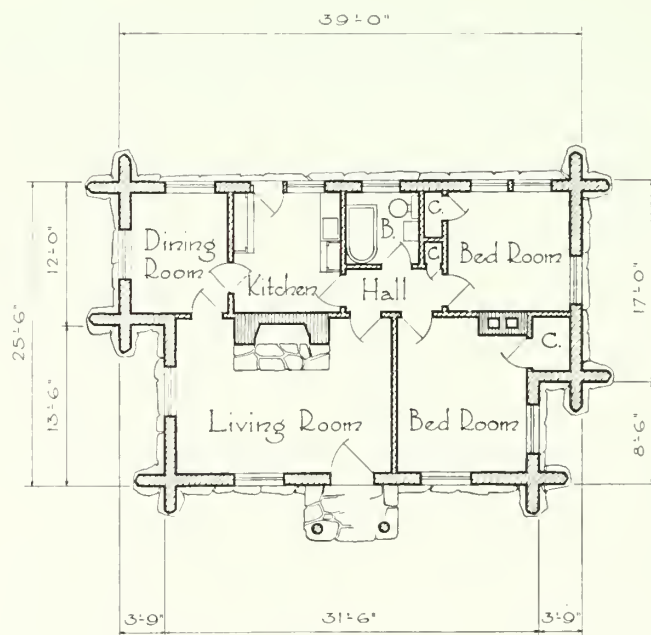
Worthy of most careful study is the locating of buildings that house park personnel. To aid effectively in supervision, such structures must be distributed with respect to the areas of concentrated use; employes' quarters should be convenient to, without obtrusively invading, the intensively used areas. Perhaps the Far East custom of a compound which isolates the foreign colony is adaptable to personnel housing in our larger parks. To say that this would serve to protect the park from the personnel and the personnel from the park is not a flippant observation. Too widespread scattering of quarters to achieve maximum supervision can result in unwarrantable modification of the far reaches of the park. It tends, moreover, to place the isolated staff members at the command of the public 24 hours a day, a situation unfair to them and to the best interests of the park.



Cumberland Falls State Park - Kentucky



Weogufka State Park - Alabama



Crowley's Ridge State Park - Arkansas

Scale $\frac{1}{16}'' = 1'-0''$

Simple in design, well-arranged, and employing inexpensive materials, here is illustrated an adequate caretaker's house. Siding of wide boards and battens, placed vertically, succeeds rather better than other economical wood constructions in appearing harmonious with a wooded setting. With the providing of an outside door to any one of the bedrooms, an acceptably accessible office would be created.



Custodian's Dwelling, Cumberland Falls State Park, Kentucky

Contrasting methods of wood construction are displayed by the three housing units shown on this page. This example employs half logs in a manner traditional to this part of the South. The smooth side forms the inside face of the walls; the rounded side, slabbed off, is exposed on the exterior. The economy of this construction over that of a full log construction is obvious.



Custodian's Dwelling, Weogufka State Park, Alabama

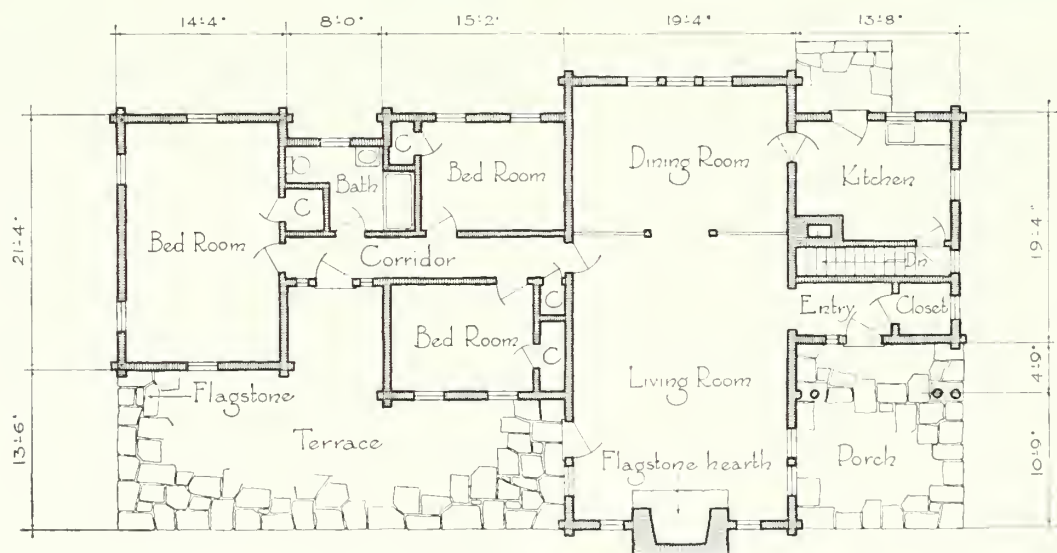
This custodian's house and one shown on another page have a family resemblance to demonstrate that the parks of Arkansas enjoy an architectural style that is definite and yet varied. Readers who more than casually scan these pages will come to expect, and will usually find, a vigorous scale and a sympathetic handling of rustic materials in this State's park buildings to rate high commendation and invite study.



Custodian's House, Crowley's Ridge State Park, Arkansas



Custodian's Cabin, Douthat State Park, Virginia



FLOOR PLAN

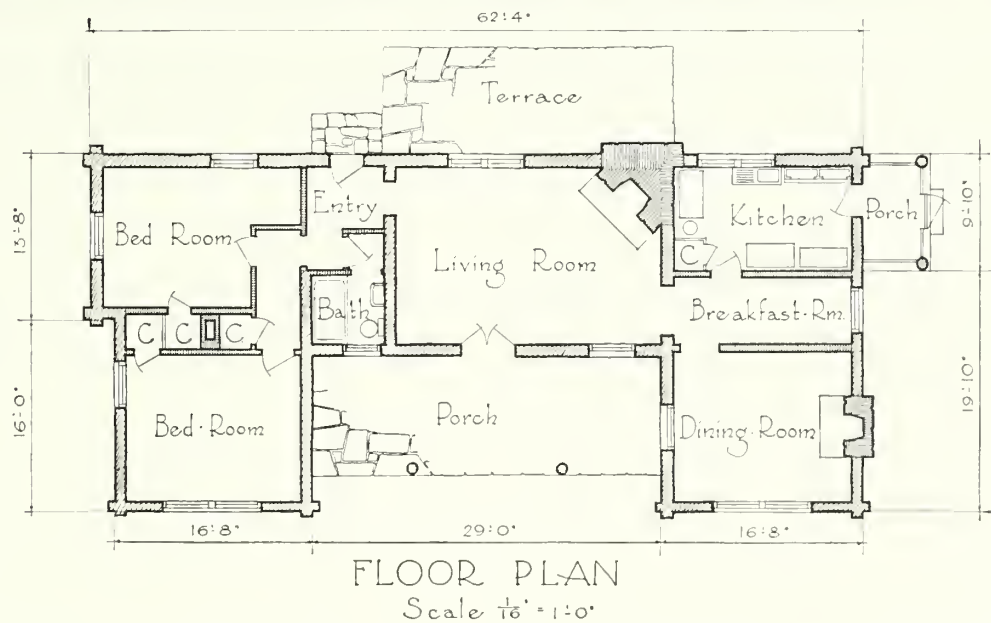
Scale 1/8" = 1'-0"

Here is proof that a log structure can be varied and exciting without breaking with tradition. A stickler for perfection might wish for a shaggier roof, closer

joints between logs, and a less pronounced terrace line, but he would be a stickler indeed in the face of such high merit in other essentials.

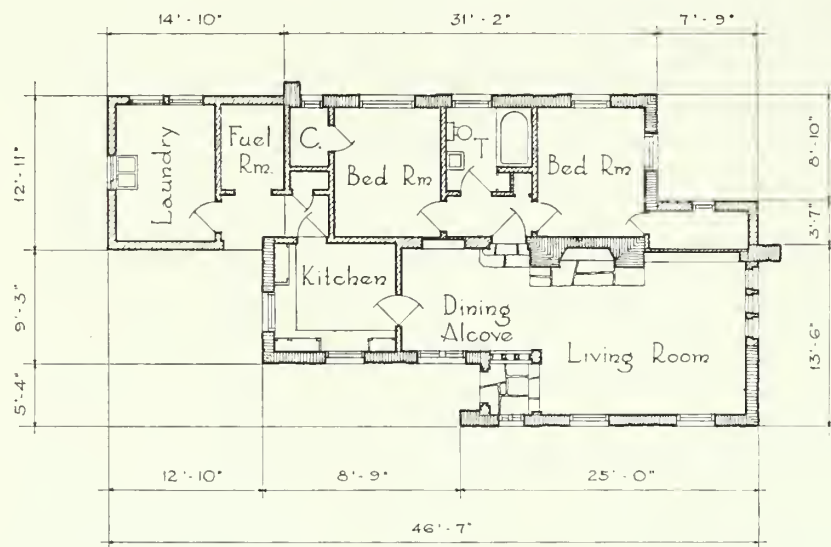


Custodian's House, Boyle Metropolitan Park, Little Rock, Arkansas

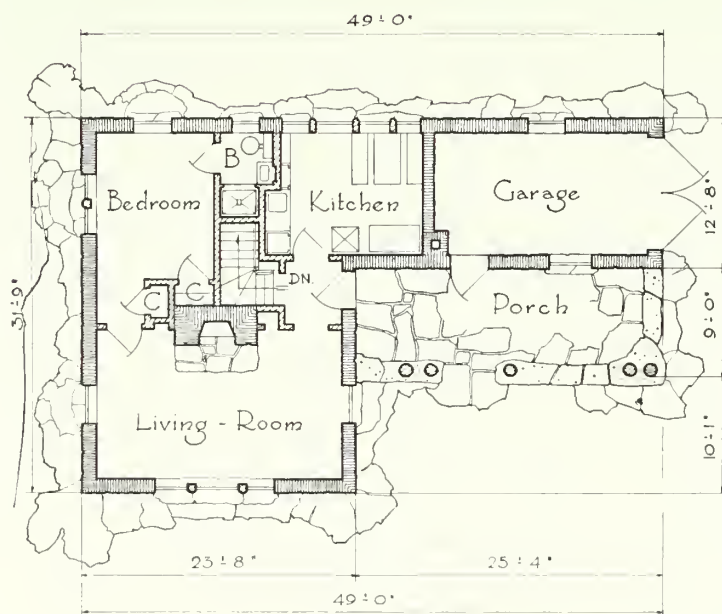


Although not specifically warned in the moral code against coveting a custodian's house among those worldly holdings that might incite envy, it was surely because such an example as this did not

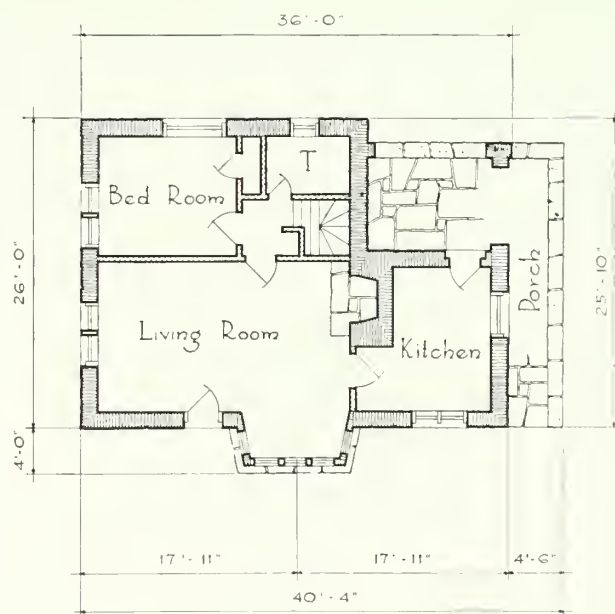
exist at the time. We may forego coveting, but are not to be denied admiring, this excellent plan and the fine use of the materials that so satisfactorily clothe it.



Heyburn State Park, Idaho.



Custer State Park, South Dakota



Backbone State Park, Iowa.

Scale $\frac{1}{8}" = 1'-0"$

An admirably arranged caretaker's cottage, hardly completed, and so standing greatly in need of, and greatly to benefit from, future foundation planting. The stone work, shake roof, and low lines generally are factors in the eventually satisfying picture the building seems to promise.



Custodian's Dwelling, Heyburn State Park, Idaho

This compact, attractive little dwelling houses the keeper of the game farm of this large park. The materials employed recall the museum and several shelters of this area, shown elsewhere. The enclosing fence is elaborate and in a degree inconsistent with the almost barren immediate surroundings.

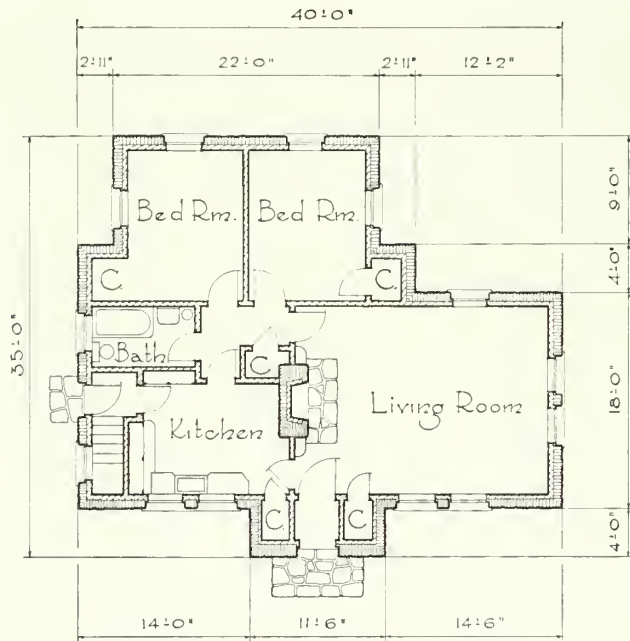


Custodian's Dwelling, Custer State Park, South Dakota

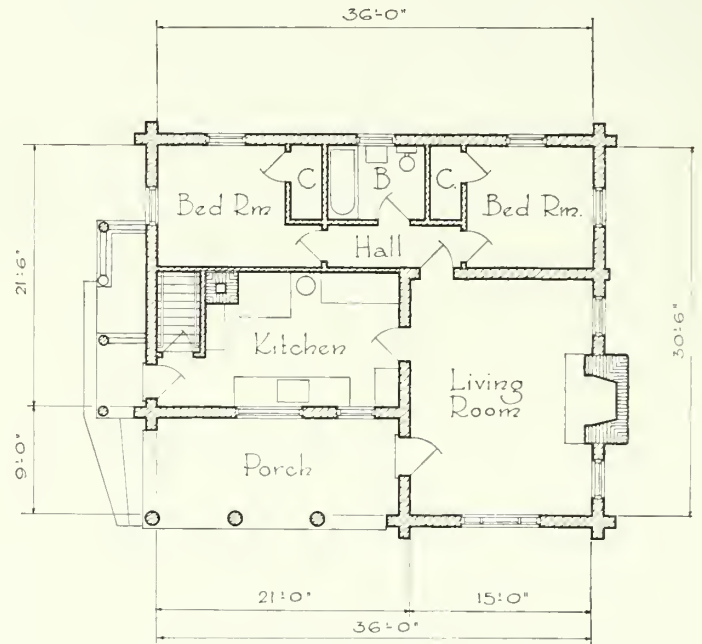
A space-conserving plan arrangement rendered in finished architectural terms which suggest an outpost of the East where the West has begun. There is a meticulousness in the laying of the masonry less and less frequently encountered in park architecture beyond the Mississippi. Such is in very proper deference to the claims of cumulative ruggedness of terrain and enlarging distances.



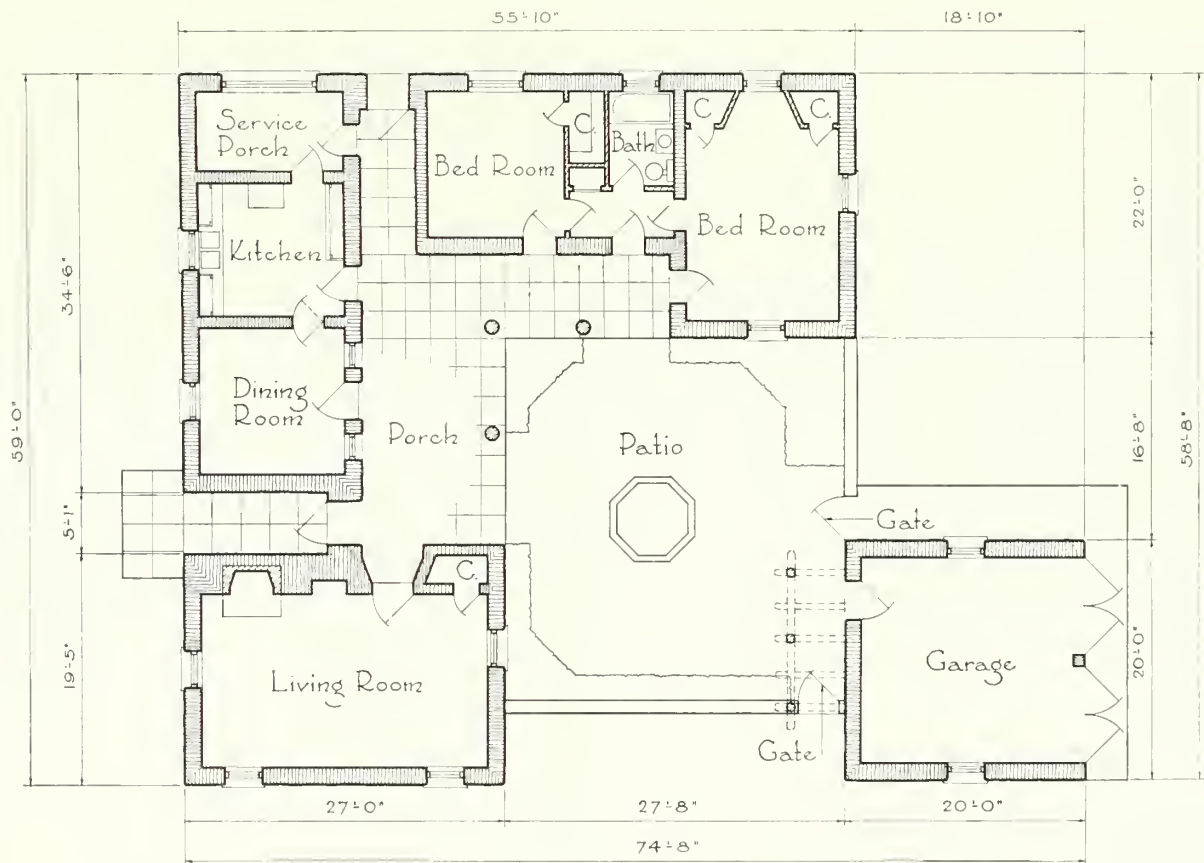
Custodian's Dwelling, Backbone State Park, Iowa



Riverside State Park - Washington



Silver Creek Falls State Park - Oregon



Zoological State Park - California

Scale $\frac{1}{16}'' = 1'-0''$

An attractive and convenient coordination of the elements that can be said to be typical of custodian's quarters in a park of average size. The ensemble rates far above average. Only improvement wished for—a horizontal bedding of the masonry. When viewed in the flesh, so to say, the lichens on the stone and the moss in the joints serve to stifle even that deprecative comment on the masonry technique.



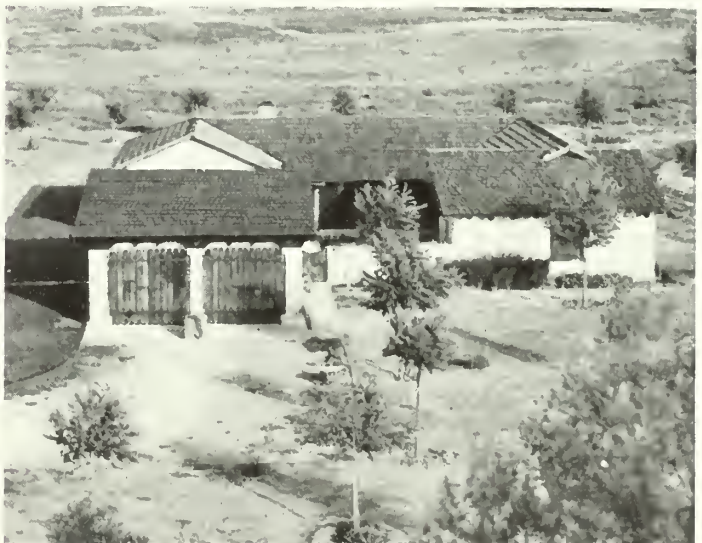
Custodian's Dwelling, Riverside State Park, Washington

The excellencies of plan cannot make us blind to the unfortunate masonry of the chimneys and the mechanical overperfection of log construction that here robs this material of the very quality that has made it preeminent for park construction. Some more equitable distribution of skill between carpenter and mason would have produced more satisfying results.



Custodian's Dwelling, Silver Creek Falls State Park, Oregon

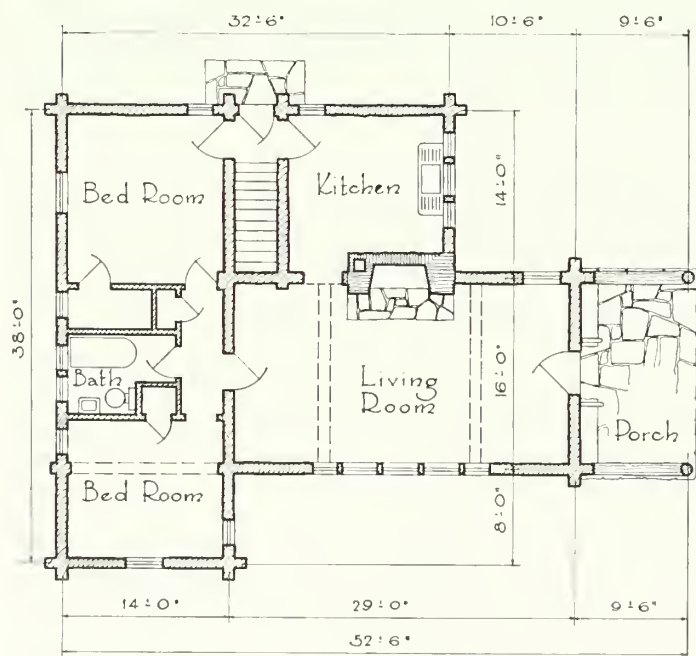
The arrangement of living quarters for custodian to create a patio is particularly desirable in the Southwest and doubly so where the distances are great and the country unwooded. The oasislike result is productive of a degree of intimacy and sense of security not otherwise achieved. A patio of size is hardly possible in connection with the very small dwelling unless service buildings and walls are joined with it, as here.



Custodian's Dwelling, Zoological State Park, California



Custodian's House, Lewis and Clark State Park, Washington



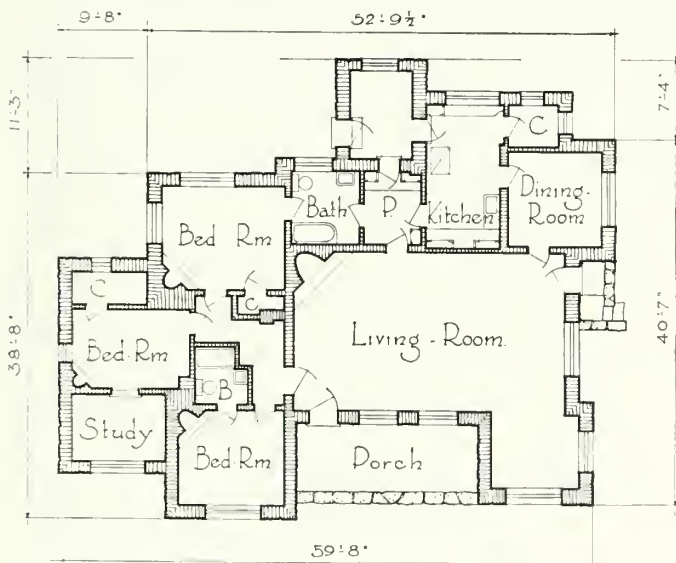
FLOOR PLAN

Scale $\frac{1}{16}" = 1'-0"$

Here is well exemplified the charm of simple unbroken surfaces strongly horizontal in feeling. Perhaps to describe this quality as poise is expressive. Whatever the word for it, it is here present in large measure, along with minor details of interest, among which are the wide muntins of the windows and the excellent scale of log work and roof covering. This building is typical of custodians' dwellings generally in the parks of the State of Washington. An approximate standardization of this particular facility for all parks within a park system forestalls any possible charge of discrimination in favor of an employe or a locality.

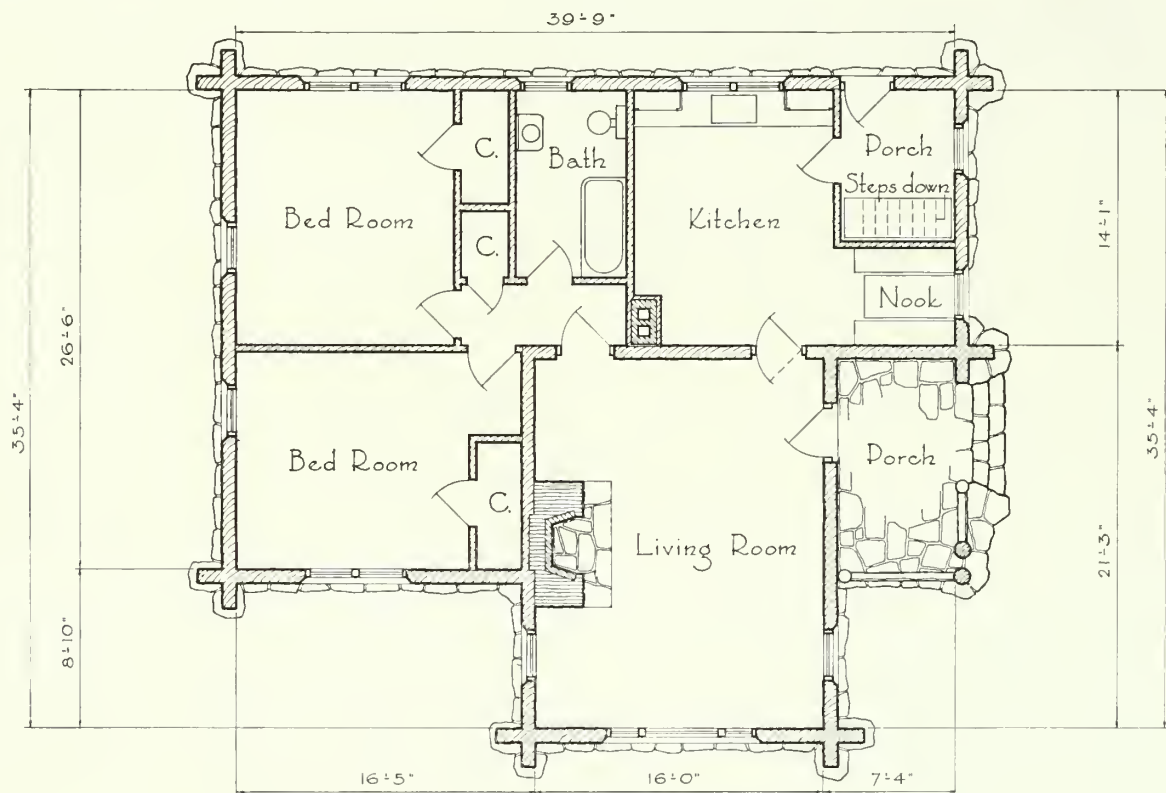


Superintendent's Residence, Mesa Verde National Park

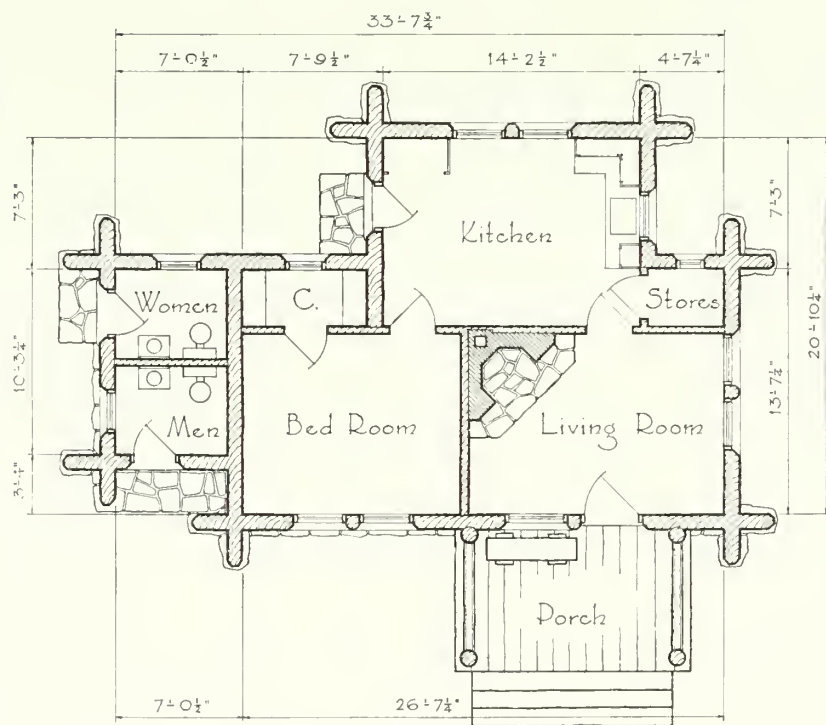


FLOOR PLAN
Scale $\frac{1}{8}$ " = 1'-0"

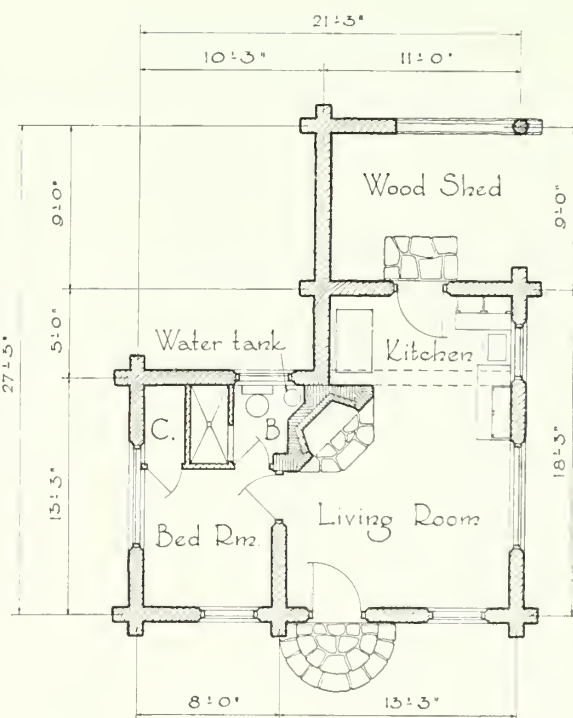
Definitely regional by reason of the technique of its masonry, the projecting vigas, and the shifting parapet levels surmounting flat roofs, this example is rather larger than most of the dwellings shown herein for the accommodation of the family of park custodian or superintendent. The building seems particularly well suited to site and to region. The several corner fireplaces are in the spirit of the architectural prototypes of the American Southwest.



Rocky Mountain National Park



Jewel Cave National Monument



Moran State Park - Washington

Scale 3/32" = 1'-0"

On the evidence of this page logs are apparently the favored construction material for rangers' stations. Subtle differences of technique, as well as of space needs, may here be compared. In all cases the recommended practice of raising the logs off the ground on a masonry foundation, thus eliminating the Achilles' heel of log construction, has been followed.



Ranger's Station, Rocky Mountain National Park

Being almost a miniature in scale, this cabin is something of a concentrated essence of log cabin structural technique. Logs are employed for the punchcon floor and steps of the porch, both details which, in modern log cabins, usually compromise with more modern and less sturdy building methods.

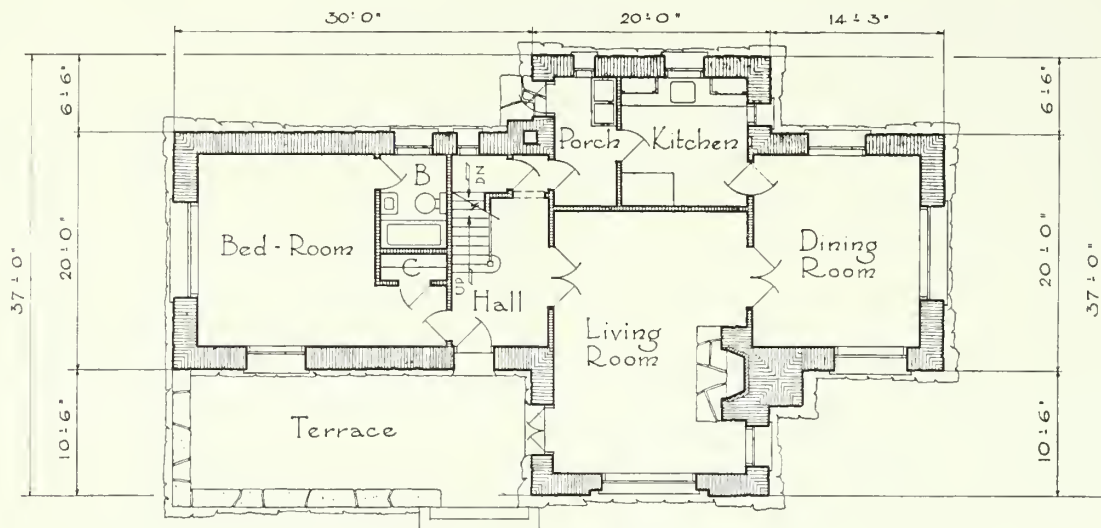


Ranger's Station, Jewel Cave National Monument

Multum in parvo is the phrase for this little dwelling which marries the split millimeter proportions of a Pullman section and the spendthrift technique of the pioneer builder. Its compactness is a masterly accomplishment, probably most appreciated by the person who must carry the firewood in a climate where the woodshed can claim so large a share of the floor area.

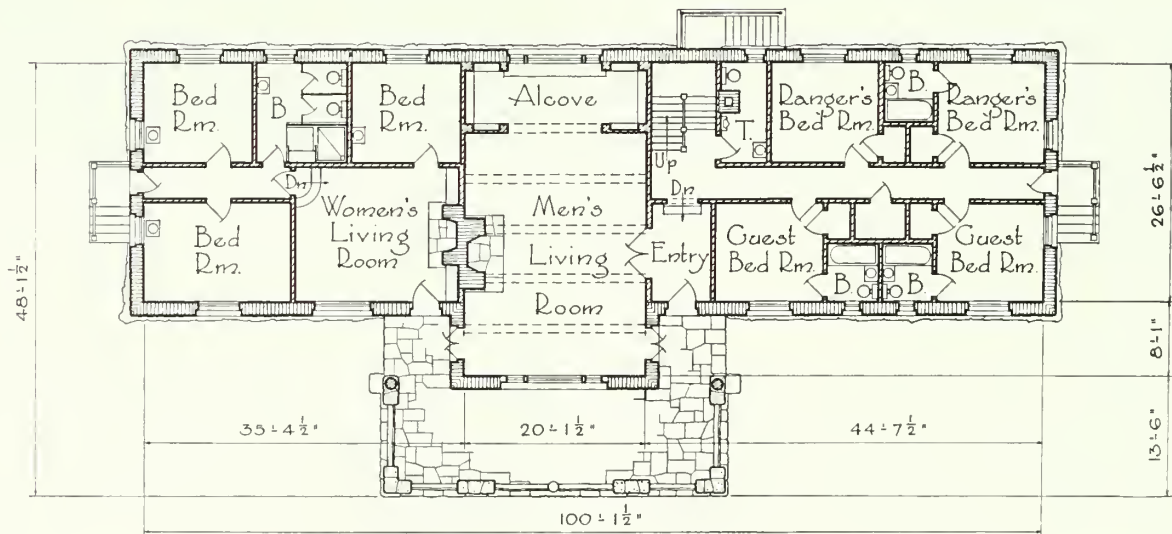


Ranger's Cabin, Moran State Park, Washington



FLOOR PLAN

Scale $\frac{1}{16}$ " = 1'-0"



FIRST FLOOR PLAN

Scale $\frac{3}{32}$ " = 1'-0"

*Superintendent's House**Naturalist's Cottage*

STAFF HOUSING, CRATER LAKE NATIONAL PARK

In all buildings for housing superintendent, staff, and employees at this park, unifying, well-defined structural traits persist. Steep roof pitch, dictated by the heavy snowfall in the high altitude here, and masonry employing boulders of impressive size, combined with rough-sawn siding or vertical boards and battens, are chief among the factors common to all. The quarters illustrated typify the ideal provision of living accommodations to meet the needs of a large national park. Ground floor plans of the superintendent's house and the rangers' dormitory are shown opposite.

*Employee's Cottage**Rangers' Dormitory**Dormitory and Mess Hall*



Entrance Side



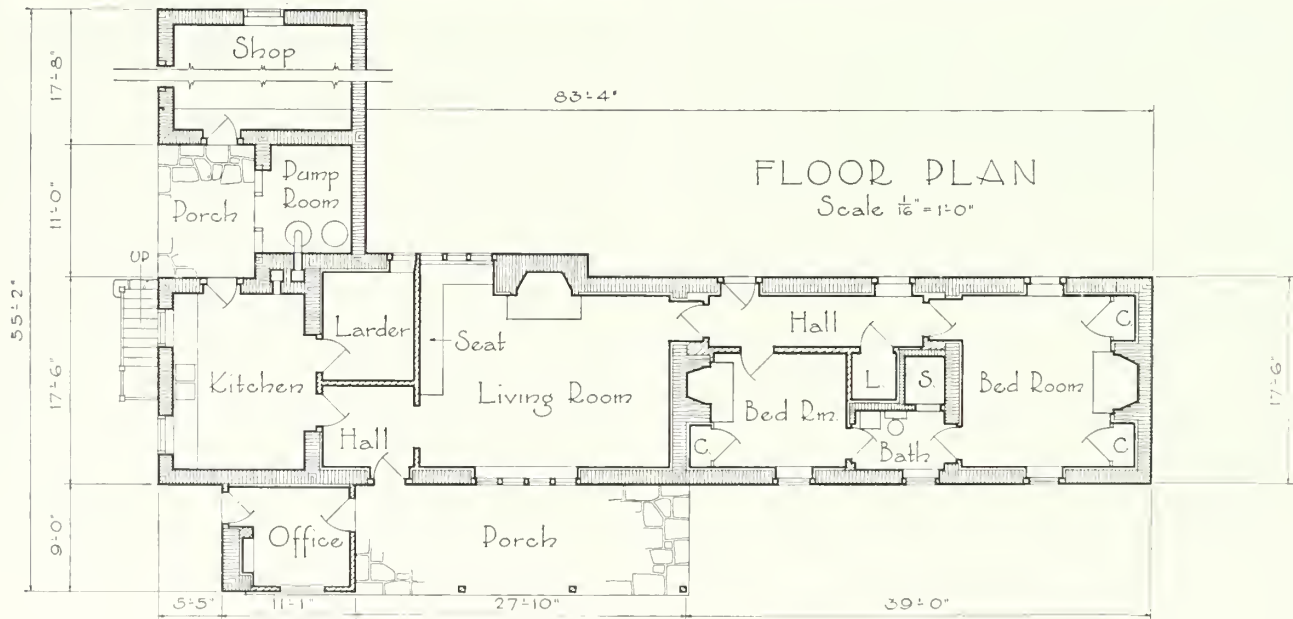
Garden Side



Service Gateway

CUSTODIAN'S DWELLING,
LOCKHART STATE PARK, TEXAS

Here is a masterful molding of a park building in the traditional forms of early Texas architecture. It should inspire more frequent ventures in adaptation of the colloquial to park structural needs, with consequently less far-flung use of the less regional so-called rustic style. Such a development will mark a significant advance for park architecture. It seems highly probable that tradition has not here been slavishly followed, and equally probable that the very liberties taken are responsible for the satisfying results.



EQUIPMENT AND MAINTENANCE BUILDINGS

» THE FACILITATING BUILDINGS least contacted by the using public, those identified with equipment and maintenance of the park area, if properly located need make little effort in gesture to environment. Generally speaking, their best location is off the track beaten by park patrons, and if isolated and well-observed these stepchildren among park structures need not suffer comparison with necessarily more self-conscious and better groomed members of the family.

This is not to say that these buildings should not be conveniently located. Inconspicuous convenience is the qualification. If such sites are not available, then these buildings must go in for protective coloration, and perhaps in greater degree than other buildings, for they are so completely non-recreational and without the saving grace of very apparent direct benefit to the public itself. Their reason for being is so inadequately sensed by the unanalytical public mind that their presence is more than likely to be subconsciously resented.

Typical facilitating buildings within parks provide in the main for the housing of trucks, road-conditioning and other equipment, tools and implements of many kinds, and for the storage of supplies, such as firewood, ice, maintenance materials, feed, explosives, gas and oil, and other items, the variety and quantity of which are dictated by the size, character, and geographic location of the park. The generic term is variously equipment, utility, maintenance, or service buildings; but it is clear that the species embraced include garages, woodsheds, storehouses, barns, shops, and numerous other structures.

Often provision must be made for the stabling of work horses, or of one or more saddle horses used by custodian, ranger, or others of the park personnel in the discharge of their duties. This leads to need for space in which to store wagons and feed.

Shops equipped for the work of the motor mechanic, blacksmith, carpenter, and painter are

essential to all large parks and extended park systems, and even in minor park areas the need for some space in which part-time work of these trades may be carried on should not be disregarded. There must be space available wherein picnic tables, signs, screens, and other items can be reconditioned, and a truck can be overhauled even though this be the only piece of automotive equipment in the park.

Mobile picnic tables and benches can require much storage space, if conditions affecting park policy dictate that these must be kept under roof during the winter months. An icehouse in which natural ice cut during the winter can be stored against summer demands is sometimes an economic requirement. Regardless of the apparent convenience to result from locating such a building on the shore of the lake from which the ice will be cut, the more valid claim of a shoreline spared such drastic infringement opposes this. It will be found that storage in reasonable proximity to the points where the ice will be used is equally convenient.

Probably in most remote parks wood is used to the exclusion of all other fuels and, where the winter season is long, cold, and rainy, a great quantity of cordwood must be on hand and much of it kept dry. This means a woodshed or shelter, usually semiclosed to give protection against rains driven by the prevailing winds and perhaps also to bring a certain orderly form and appearance to a wood pile which otherwise would tend to be ragged and unsightly. Particularly in the parks of the Pacific Northwest are sizable woodsheds an accepted facility.

These and many other service space needs crop up so progressively during park development that the equipment and maintenance building or group seems always to be in process of change or in crying need of it. Indeed it is foolhardy to look upon the most carefully considered and planned initial

structure as the fixed ultimate. It may serve perfectly the need of the moment. But there is nothing more legitimately subject to change than service and facilitating needs during the development of a park, and few parks are recorded as having finally passed that stage. The very choice of site for the service center should be predicated upon expansion possibilities beyond all reasonable limits to be foreseen at the start, and the wise technician will clearly visualize and cannily plan the initial structure as an extensible building, or as one unit with which others can be joined or grouped.

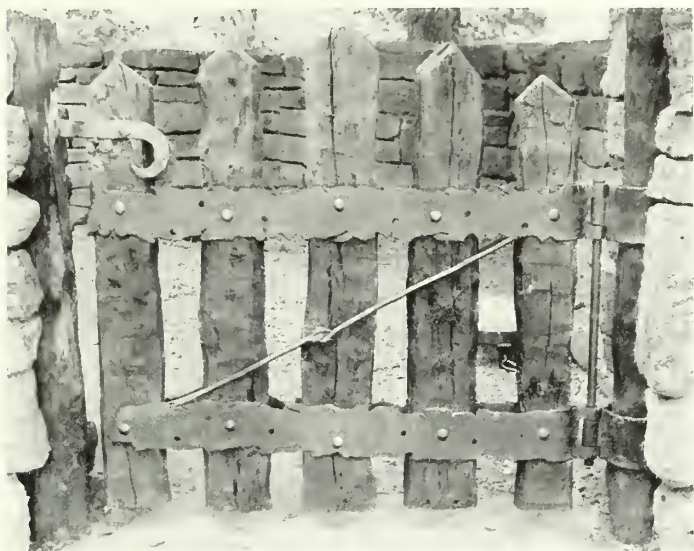
Probably the happiest and most forehanded visualization of the ultimate maintenance group is a square service courtyard surrounded by all the facilitating structures. If at the starting gong the required buildings utilize but one, or at most two, sides of the eventual courtyard, the planner need not feel regretful concern for its incompleteness. Time will correct that, and speedily. His concern might more profitably be for how the threat of future additions will be met after structures have raced their way to enclose all sides of the courtyard. He may almost find that to maintain any opening for access to the service court is his real problem.

The chief advantage of the "hollow square" plan is the confinement of maintenance activities and paraphernalia to an area that becomes ultimately screened from public view as the expanding structures proceed to enclose it. Cavernous openings for entrance of trucks and equipment, factorylike windows so necessary for proper lighting of work spaces—all the inharmonious and unparklike—can

be made to open on the court, while the walls exposed to public view need not shout stridently the storage and maintenance activities within. This results in an opportunity to limit "eye appeal" construction, where this must be adopted, to the exposed outer walls, and to resort to strictly practicable and serviceable construction within the court. The "hollow square" serves also to accommodate and screen from view any equipment which need not be kept under roof. It masks the loading and unloading of supplies, the arrival and departure of work crews, and the other necessary activities which can be destructive of the visitor's primary desire for the illusion of Nature unaffected by man's contacts.

Indeed should the building of permanent buildings to hem in an "equipment corral" seem a distant prospect, it is often advantageous to complete the enclosure by means of a temporary (though it should be a substantial) stockade or other type of fence.

The park patron thus is fended from wandering into the activities of the maintenance base with which his recreational use is not properly involved; and limits are created to prevent a loose overflow of maintenance facilities into areas which the public should be privileged to claim for its own. Confined to their own fixed precinct, surrounded and obscured by their own requirements of structure, the activities and facilities which have to do with the mechanics of development and maintenance need not constitute a disfigurement of a preserve of Nature.



Palmetto State Park, Texas



Garner State Park, Texas

SERVICE GATES

Functioning as entrances to service or utility enclosures, the gates here pictured are not without decorative value, particularly the two at the top of the page. The gates directly at right permit the entrance of a vehicle through a fence of good park character which surrounds an incinerator. The example at lower right is likewise of vehicle width and gives entrance to a typical service group enclosure. The gate which continues the palisade fence leads to the service yard of a lodge building and affords a maximum of obstruction to view.



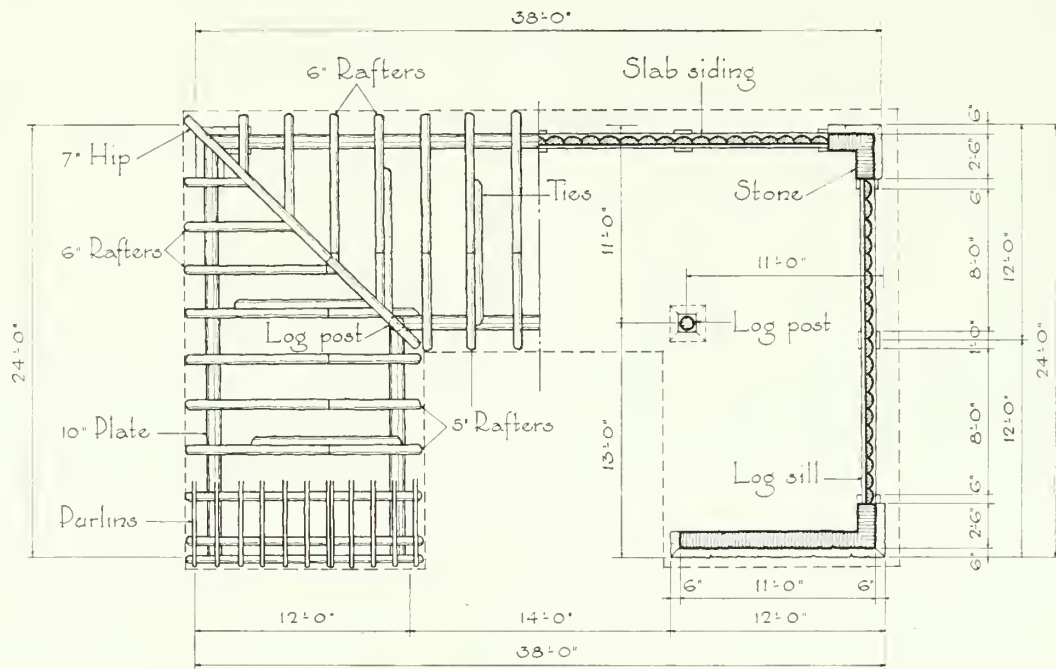
Bonham State Park, Texas



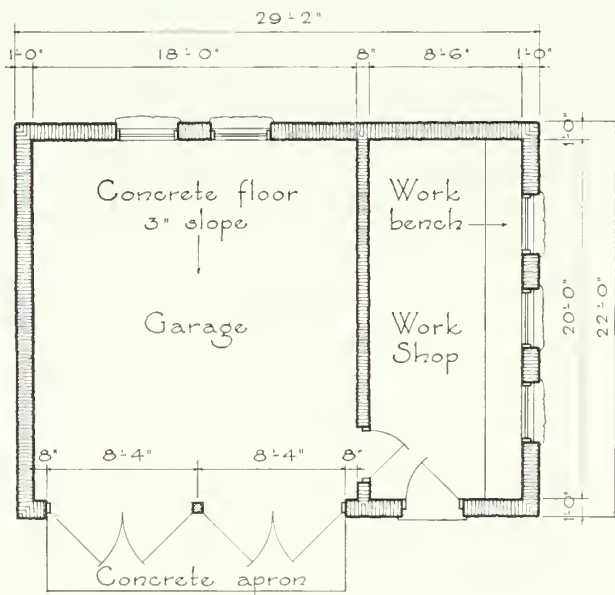
Petit Jean State Park, Arkansas



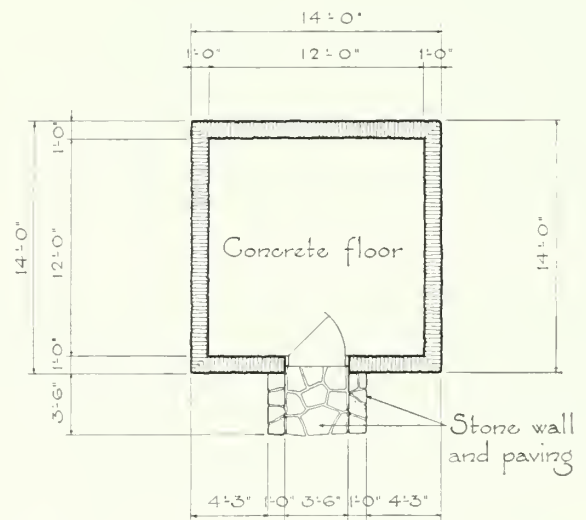
Lake Brownwood State Park, Texas



Wood Storage Building



Caretaker's Garage and Workshop



Utility Building

Riverside State Park - Washington

Scale $\frac{3}{32}" = 1'-0"$

Here illustrated are three structures of maintenance purpose which, with a custodian's dwelling elsewhere shown in this compilation, indicate a pleasant and consistent unity of structural theme. Together these make up a group as closely related by location and function as by architectural style. The not entirely satisfying masonry may result from characteristics of the local stone which make more structural shape for the units difficult, if not impossible.

In extent this garage with shop space is typical of the facility that complements the caretaker's dwelling in the park of average size. The shop is well lighted. The outcropping rocks in the foreground are indicative of the character of the area and probably explanatory of the imposed limitations of masonry technique here. The lichens on the stone surfaces exposed in the walls and the moss-filled joints go far to compensate for the unstructural pattern of the masonry.

This little building has been allowed to stray from its logical location in this book with geographical justification. Though it is a pumphouse, it is shown here with its near neighbors of an equipment and maintenance group to illustrate at full length the harmony which derives from the employment of similar materials and one architectural expression for a group of related structures.



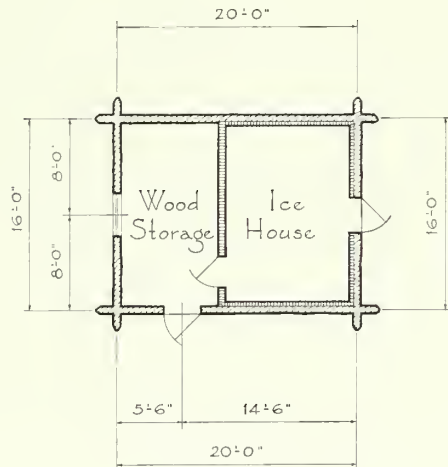
Wood Storage Building, Riverside State Park, Washington



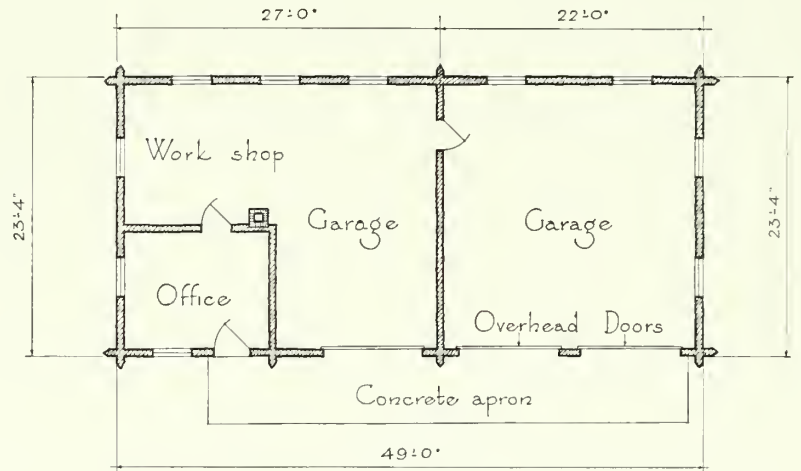
Caretaker's Garage and Workshop, Riverside State Park, Washington



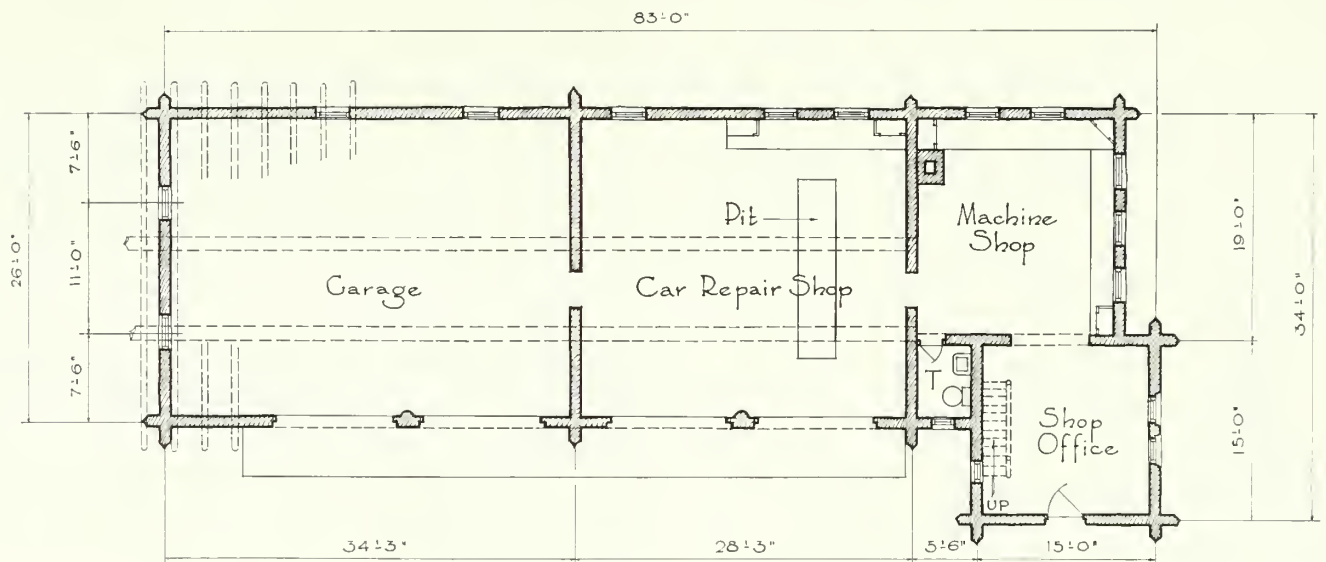
Utility Building, Riverside State Park, Washington



Scenic State Park - Minnesota



Scenic State Park - Minnesota



Itasca State Park - Minnesota

Scale $\frac{1}{16}" = 1'-0"$

A little building of humble purpose, glorified by the excellent log work that is almost the invariable accomplishment in Minnesota parks. The projecting logs at the corners keep within allowable limits of rakishness and enliven the general effect. The ridge, capped with pole, and other details should be noted. Ice, wood, and tools are stored in the building. The walls and roof of the section allotted for ice storage are lined with insulating material.



Wood and Ice House, Scenic State Park, Minnesota

An equipment and maintenance building which is obviously close kin to the wood and ice storage building of this same park. The family traits of selected, straight logs and high craftsmanship in joinery are unmistakable. When all park structures built for public view exemplify the sturdy forthrightness of these mere facilitating buildings, much existing construction will have been replaced.

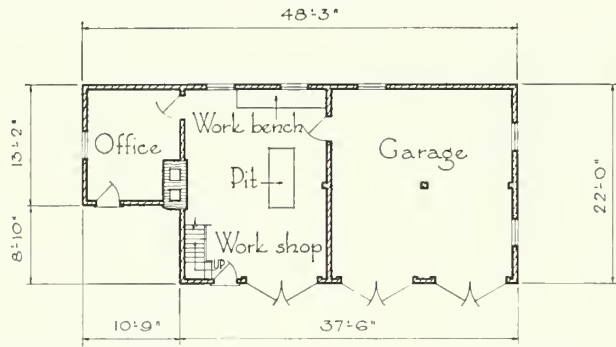


Garage, Scenic State Park, Minnesota

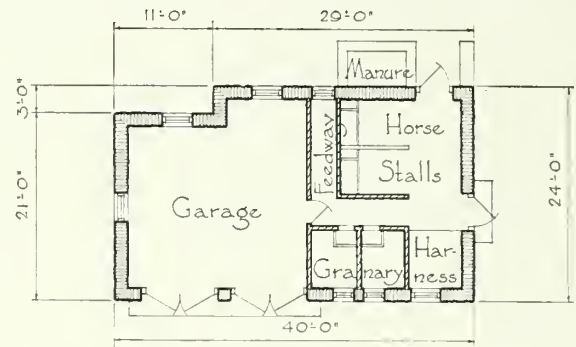
Where construction is so skillfully executed as here, one regrets that its functions and its construction materials combine to produce fire hazards far above the average. The two-story portion contrives to suggest a blockhouse form, but it will be seen that the overhang is instead an optical illusion. The building is too sightly a structure to be allowed to remain long without the added benefit of some foundation planting where this is possible.



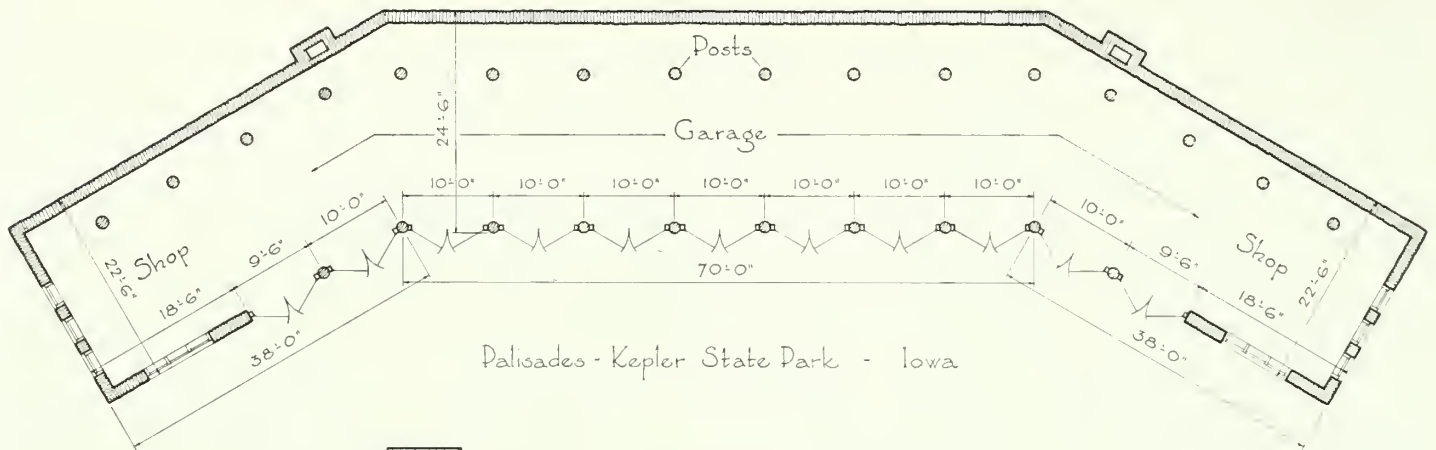
Equipment Building, Itasca State Park, Minnesota



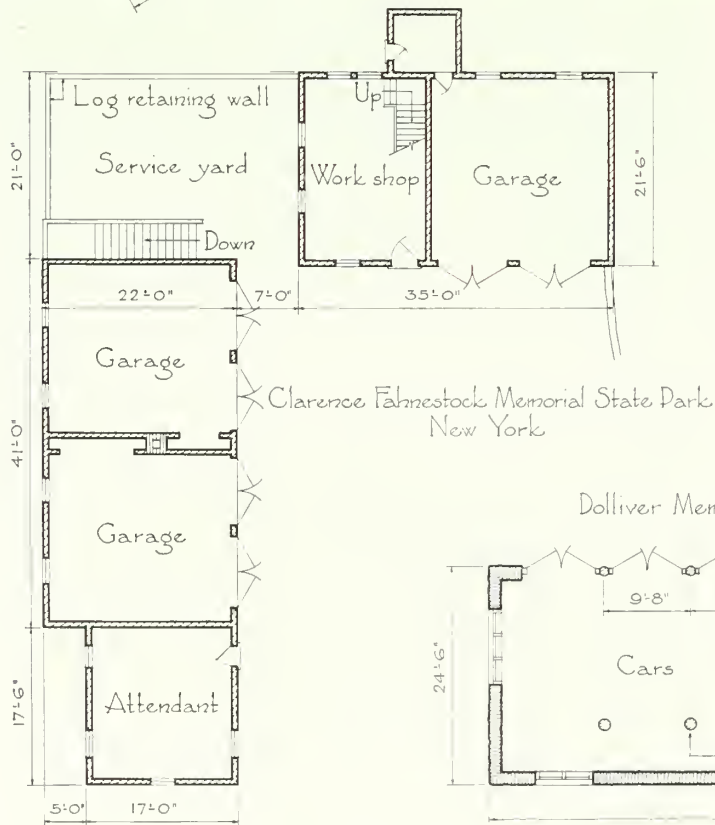
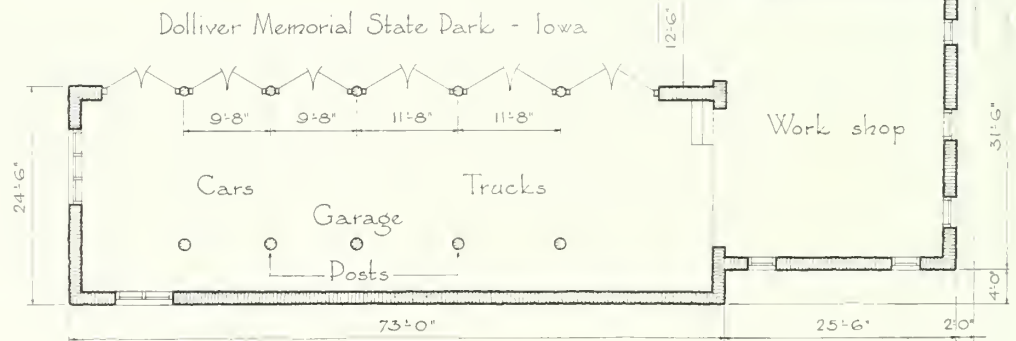
Levi Jackson Wilderness Road State Park - Kentucky



Pilot Knob State Park - Iowa



Palisades - Kepler State Park - Iowa

Clarence Fahnestock Memorial State Park
New York

Dolliver Memorial State Park - Iowa

Scale $\frac{3}{4}$ " = 1'-0"



Levi Jackson-Wilderness Road State Park, Kentucky



Pilot Knob State Park, Iowa

THE SERVICE QUADRANGLE IN DEVELOPMENT

The small Iowa and Kentucky examples illustrated above are typical of the modest beginnings of storage facilities for maintenance materials and equipment in connection with a caretaker's group in a small park. The other three here shown well illustrate the tendency to expand, inherent in service buildings. Happily, the two at the bottom of the page suggest expansion along recommended lines—to an eventual equipment and maintenance courtyard or enclosure.



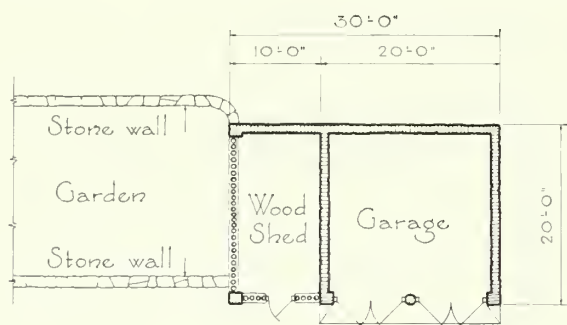
Palisades-Kepler State Park, Iowa



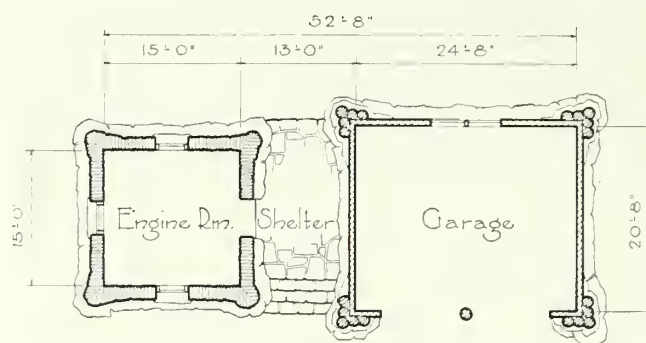
Clarence Fahnestock Memorial State Park, New York



Dolliver Memorial State Park, Iowa

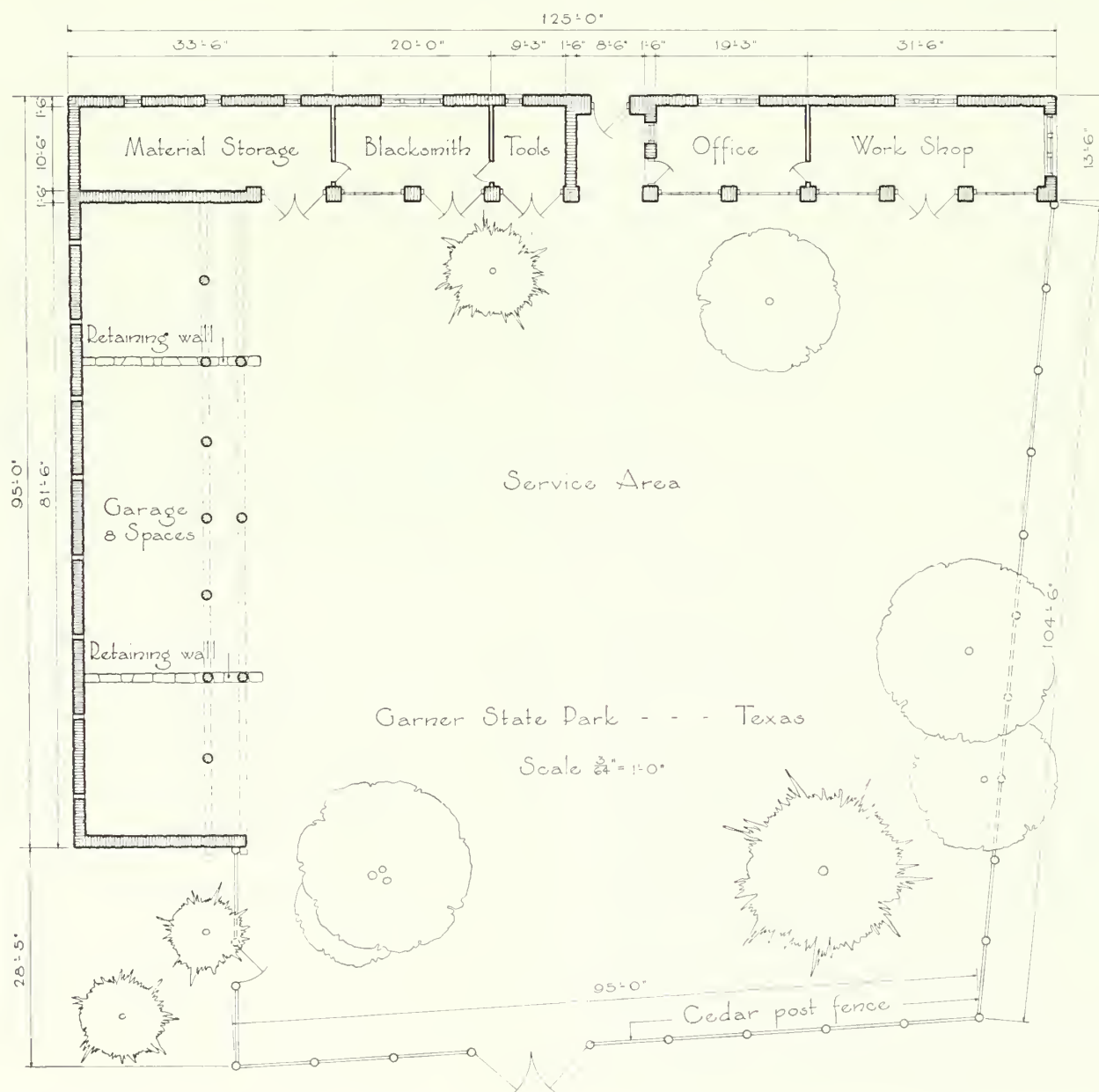


Palomar Mt. State Park - California



Boyle Metropolitan Park - Arkansas

Scale $\frac{3}{64}'' = 1' - 0''$



Garner State Park - - - Texas

Scale $\frac{3}{64}'' = 1'-0''$

Again is presented a garage building with storage space meeting in general a custodian's needs in a park. There is novelty in the combination of stone masonry and vertically placed slender poles serving as curtain wall. Depreciative of the total effect of the building is the flat, thin roofing, too meticulously laid to be completely harmonious with the setting.



Custodian's Garage, Palomar Mountain State Park, California

This spirited rendering of a custodian's garage departs from the typical in its link with a pumphouse and water storage tank. There is a surprising variety of materials in this design. The texture of the shake roof and the batter of the rude rock base, suggesting a sparing use of mortar, are details of great interest.



Custodian's Garage, Boyle Metropolitan Park, Little Rock, Arkansas

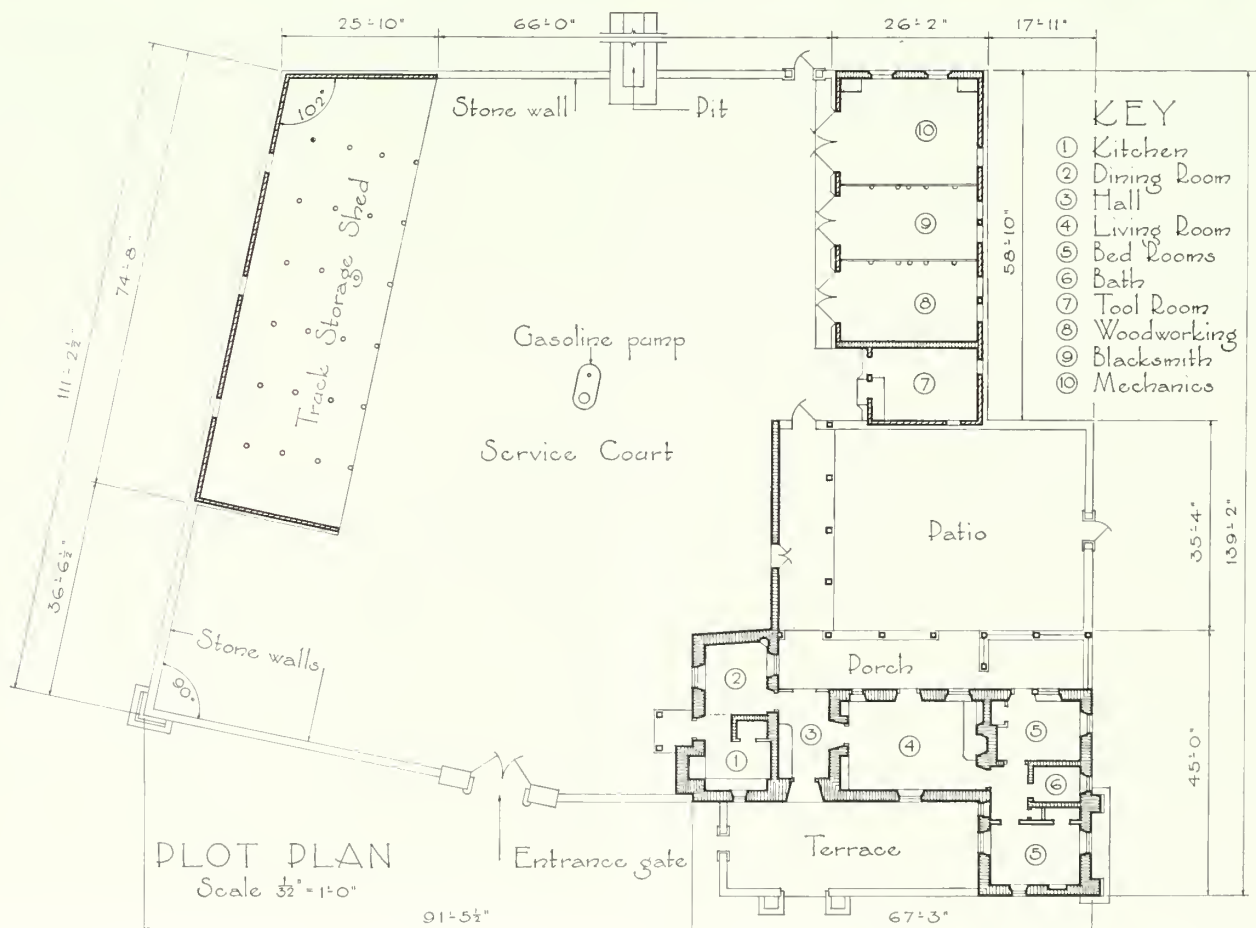
The case for the equipment and maintenance courtyard or enclosure rests on this exhibit and two which follow. In this instance equipment sheds supply one side of the quadrangle, shops, another. Palisade fence completes this "introvert" lay-out, which safeguards the public's right to a park area unblemished by long-range views of gaping garage doors, mechanical equipment, and other such disillusioning paraphernalia.



Service Group, Garner State Park, Texas



Service Group, Goliad State Park, Texas





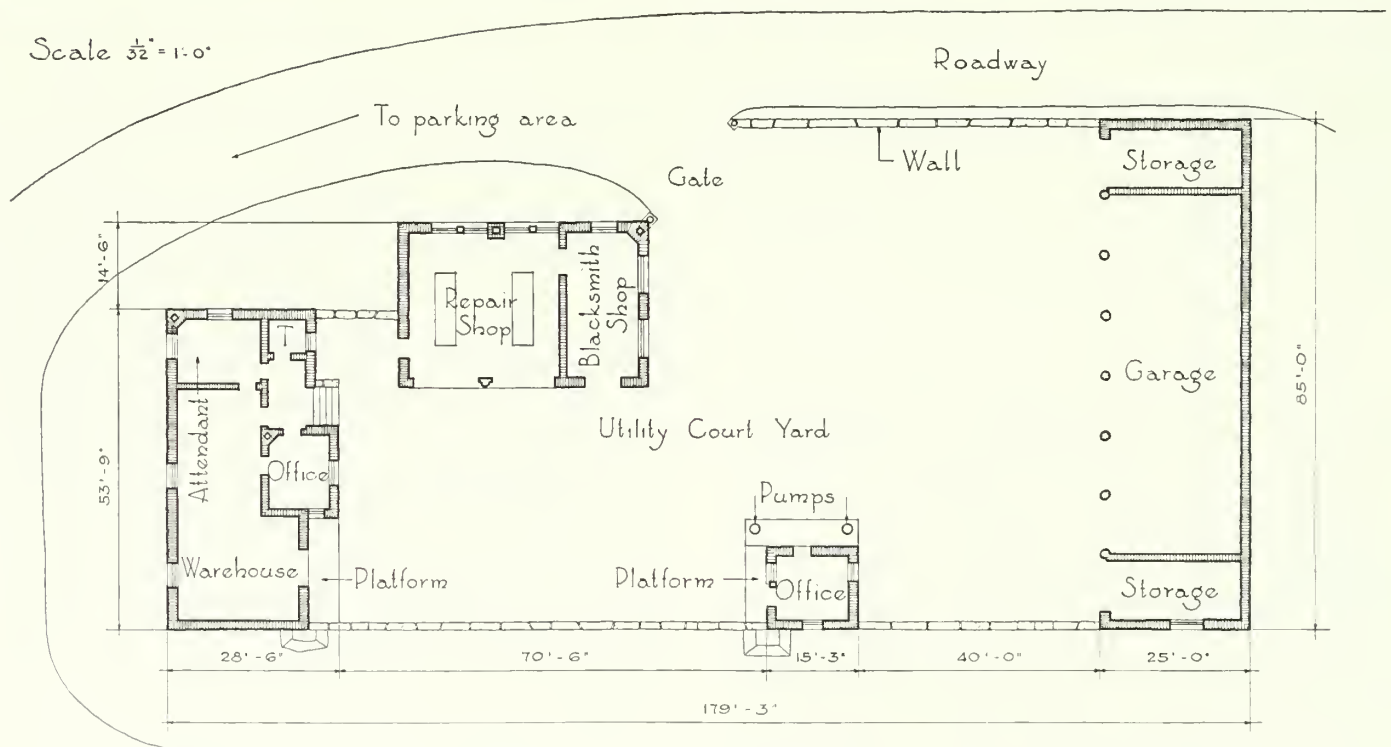
SERVICE GROUP IN EXTENSO,
GOLIAD STATE PARK, TEXAS

Not content with supplying a full complement of structural units for equipment and maintenance needs, and connecting with the caretaker's house in a logical plan arrangement, this service group arrays itself with exquisite care in the traditional south Texas architecture that characterizes the dwelling. In a general prevalence of a certain "down-at-heelness" among buildings meeting these needs in parks, the nice attention here lavished on detail is as welcome as it is startling.





Service Group, Bandelier National Monument



The sufficient-unto-itself service yard enclosure as it has found expression on a national area. Necessary buildings and connecting walls close in a work yard promising comparative freedom from interruptions by a curious public, as well as from pilfering.

Certain minor elements of the plan wait upon future construction although the plan fails to disclose this fact. The simple character of the stuccoed buildings and walls seems very suitable to the location in the Southwest.

DRINKING FOUNTAINS AND WATER SUPPLY

➤ IT IS ASSUMED to be unnecessary to dwell more than momentarily on the two absolute essentials in provision of drinking water in park areas. Primary of these most important considerations is the unalterable requirement that the water supply shall be completely safeguarded against contamination. Hardly second to this is the need for dispensing it at so many points over the park area that it is always easier for the park patron to avail himself of the protected water supply than to seek out brooks and other possible sources of drinking water not policed against pollution. Treatment of the bubbler, well, or spring as an architectural or landscape feature can hardly claim consideration until these two major demands have been met. Only a firm conviction that a safeguarded and widely distributed water supply may be taken for granted universally in the park planning thought of today encourages a venture in consideration of the form and character, in an architectural and landscape sense, of the dispensing media.

The cleaning out of a spring and the erection of some suitable enclosure to minimize the danger of pollution are in the direction of a safe water supply. However, if the public is to have free access to the spring at the source, the human equation enters and renders problematical continuing cleanliness. Poetic in fancy is the cool, clear pool from which to drink on bended knee, but subject in fact to the careless habits of that considerable section of the public which can be perfectly unaware that others both precede and follow.

The ungarnished rendering of a facility for the dispensing of drinking water is a vertical pipe terminating with a tap, the tap perhaps inverted to serve as a simple, but far from sanitary, "bubbler." Such a contrivance set out in the open will satisfy thirst, but certainly not the eye. If it is decided to mask its gaunt utilitarianism by locating it amongst low growth of planting, it is not readily discover-

able, and a sign must point out its location. If provision is not made for disposing of drip and overflow, the tap is soon the center of a muddy wallow, and only accessible if planks or stepping stones are provided. All of which soon demonstrates that the utterly simple facility suffers from very real disadvantages, and leads logically and necessarily to its being accepted as something of a feature, its functionalism neither so starkly naked as to offend the eye nor so elaborately draped as to fail to declare itself. With the imperative need for suitable disposal of waste water and for bubbler of truly sanitary type, and such desirable refinements as steps to accommodate children, tap for the filling of pails, and in some climates or locations even roof protection against the heat of the sun, the feature becomes multi-functional, and demands careful study in any pursuit of satisfying results.

Important in connection with a piped water supply out-of-doors is a suitable arrangement for shutting off and draining the pipes in winter weather. This provision should not be overlooked wherever climate would indicate need for it.

Because the treatment of the drinking fountain or bubbler as an isolated unit is so difficult, every opportunity should be embraced to incorporate this facility within any suitable building situated near the spot where drinking water is a requirement. It is possible and desirable to include bubblers as features of structures erected primarily for other purposes, and thus to eliminate some of the separate installations. Many bubblers have been installed separately that need not have been.

Sometimes the source of drinking water at a park location is a shallow well equipped with a hand-operated pump. This piece of mechanism, as currently quantity-produced, has strayed far from the picturesqueness of its forerunner, the town pump, though very definitely not into the arms of any industrial designer. It displays nothing of good

old-fashioned primitive substance and has strangely escaped the face-lifting manipulations of the streamliners. It is not to be wondered at then that the plight of this neglected ugly duckling so challenges the chivalry of designers of park facilities that they ride forth in shining armor to see justice done.

Rescue may take the form of a round or squared log hollowed out to sheathe or encase as much as possible of the unprepossessing mechanism. Often the handle that is standard equipment with the pump is replaced by one shaped out of wood, and the spout on occasion is hooded by a fortuitously occurring forking branch. This is not to be tolerated of course if it must be interpreted as a reprehensible device for making a new-fangled metal pump look as though it were a primitive wooden one. Justification lies rather in the fact that something unsightly may be masked by the use of a material more natural to a park setting, just as the hood, covering and concealing the automobile engine, is accepted without any very general eyebrow-lifting.

Of course there are those who are for open plumbing openly arrived at and who will decry the foregoing solution as being utterly unprincipled. It is our great good fortune that for them there remains an alternative method for bringing a measure of charm to the creaking, clanging pump without resorting to the immoral trickery of the aforementioned handcrafted figleaf. This is to cloister the unadorned pump in the dark shadows of a small shelter.

The well or pump shelter can be so happily executed that we are made blind to the ugliness of the pump in our admiration for the shelter. The effective disposal of the waste water from a pump located in a shelter is an important detail. This is sometimes provided for by a sump at the base of the pump, but the more positive method for preventing damp and unpleasant conditions within the shelter is to lead the waste outside the building

by means of a trough where it can leach into a dry well. Seats of one form or another are usually incorporated with the pump shelter.

Another structural item often required in a park as a part of the water supply system, though probably seldom for drinking purposes, is an elevated storage tank. The "theory of approach" to design of this structure presents much the same quandary as that of observation and fire towers. There is at once an urge to give it skeletonized directness revealing of purpose and an inclination to enclose it in a degree concealing of its function. When the former approach can be followed to the high accomplishment of the example at Mount Nebo State Park, Arkansas, we are convinced that this is the one admissible "theory" of design. When some of the examples that enclose and conceal the tank are studied, we waver to the point of admitting that the second approach has its points.

Accessory to an elevated storage tank is a minor building housing the electric or gasoline operated mechanism that lifts the water from the well, spring, or other source to the elevated tank. While it is possible to imagine unusual conditions under which the pump machinery might be in the base of the tower enclosing the elevated tank, it is customarily a small separate building, determined by the source of the water supply and hence more or less remote from the location logical for the storage tank. If the water is to be pumped from a well, a hatch should be provided in the roof of the pumphouse directly above the well to anticipate the pulling of the casing or making of other repairs without affecting fixed construction.

The problem becomes one of knowing how far to go and where to stop in glorification of the drinking fountain, the pump shelter, and other water supply structures. The examples shown herein illustrate various stages of the process. Personal preference alone will dictate at what point and in what particular the bounds of reason and good taste have been overreached.



Crowley's Ridge State Park, Arkansas

PUMPS SYLVANESQUE

Here are pumps which strive valiantly to be Roman in Rome by wrapping a wooden toga around their barbaric functionalism. The ethics of it all will doubtless be cried down by many. Suffice it to be recommended here that 'twere done when 'tis done with the measure of ingenuity and skill evidenced in the surrounding illustrations.



Parvin State Park, New Jersey



Saratoga Hot Springs State Park, Wyoming

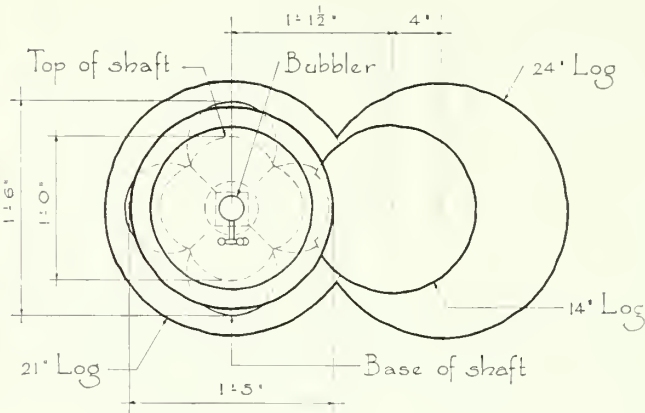


Boulder Mountain Park, Colorado

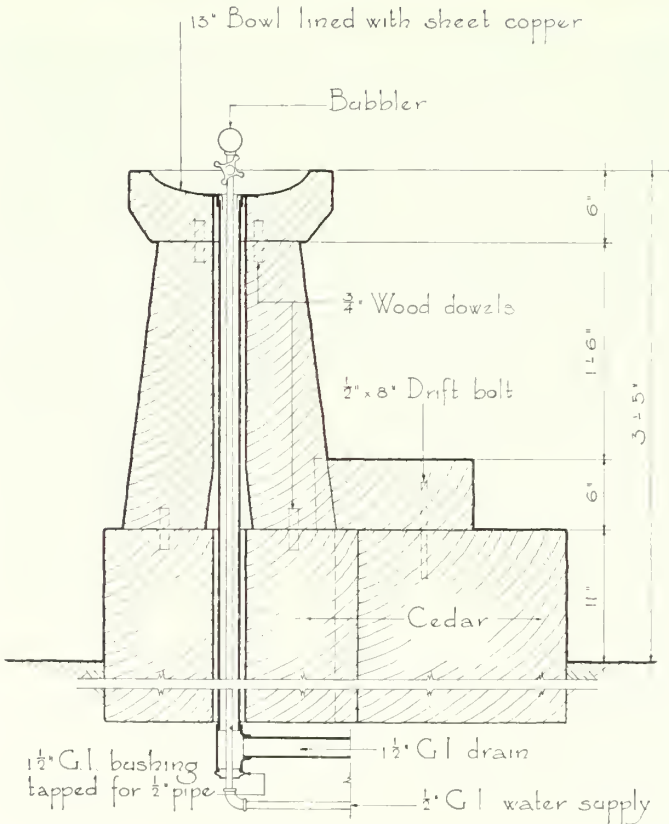


Drinking Fountain
Lewis and Clark State Park - - - Washington

Recommended to the consideration of those who are repelled by the impropriety of an unprocessed log, serving (masquerading, they will say) as a drinking fountain, or a drinking fountain borrowing the protective coloring of (pretending to be, they will say) a natural log. This duly processed wood pedestal may be the ethically sound and acceptable compromise that can effect a truce between the warring partisans in this very vital issue involving legitimacy of use.

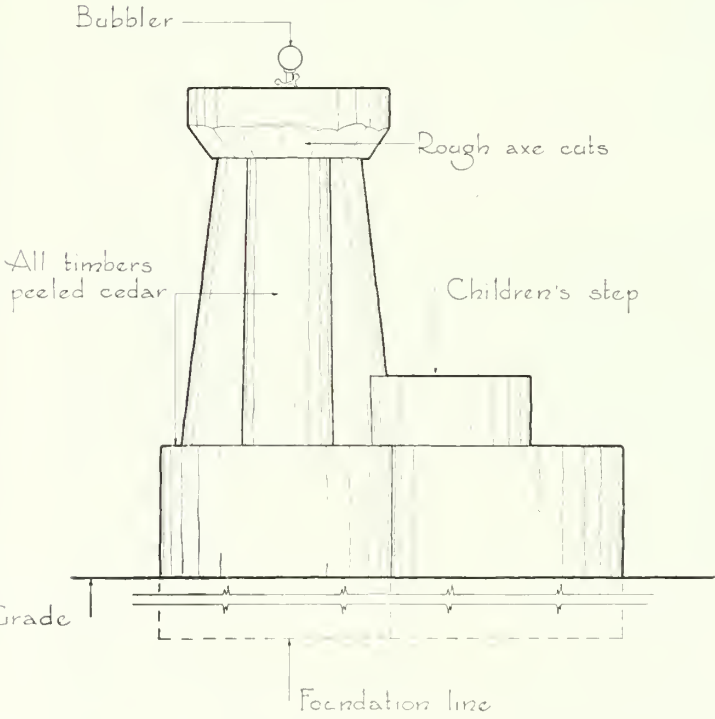


PLAN



SECTION

Scale 3/4" = 1'-0"



FRONT ELEVATION



Mohawk Metropolitan Park, Tulsa, Oklahoma



Stackhouse Metropolitan Park, Johnstown, Pennsylvania

LOG PEDESTAL DRINKING FOUNTAINS

In the above example the additions of log posts and designative sign evidence substance, protection, and dignity brought to an exposed pipe terminating in a tap. Other illustrations demonstrate wood-encased drinking fountains to embrace one from which it was neglected to remove bark and another which can boast many steps in assorted heights. Fair appraisal of the suitability of wood to this use must base from whether it was premised to make a drinking fountain look like a tree trunk or to lend substance to the facility by the use of a material abundantly at hand.



Mount Penn Metropolitan Reservation, Reading, Pennsylvania



Crowley's Ridge State Park, Arkansas

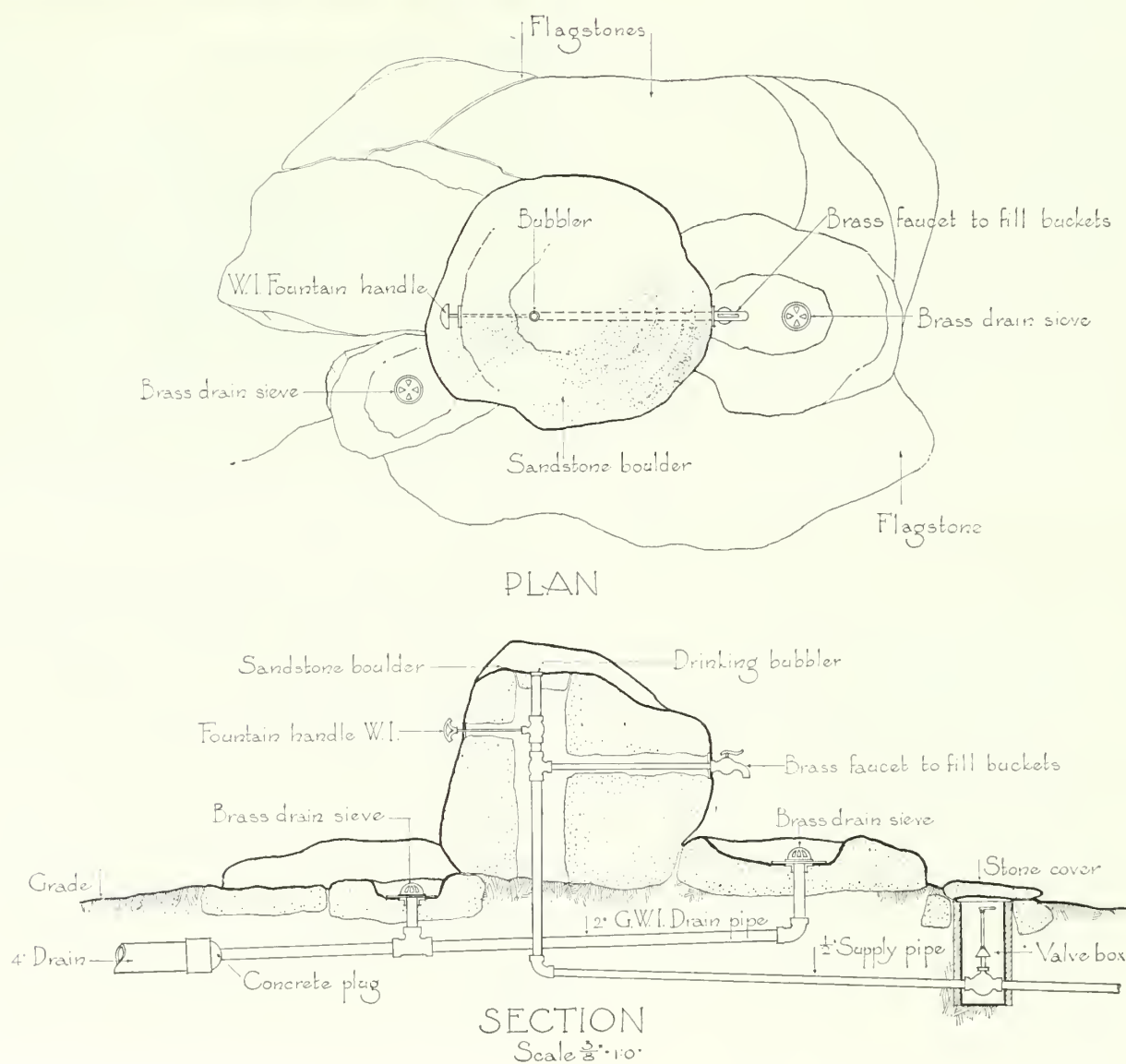


Humbug Mountain State Park, Oregon



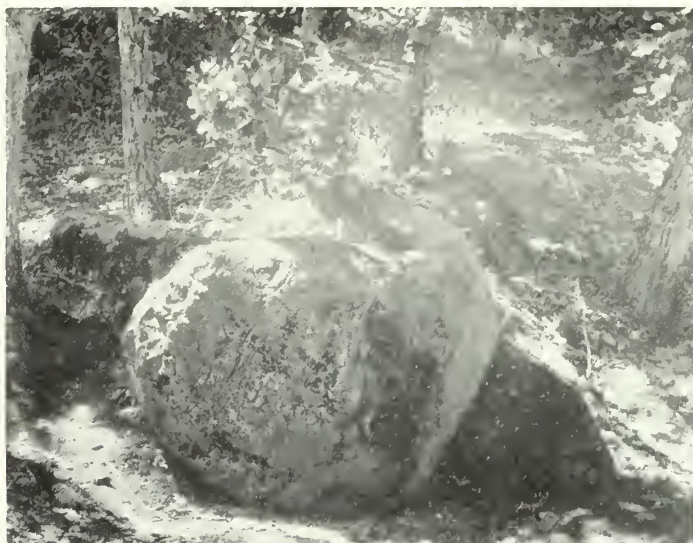
Drinking Fountain
Lake Guernsey State Park - - - Wyoming

Here certainly is the peak accomplishment in naturalistic mas-
king of a provision for bubbler and tap. It is a temptation
hardly resistible to state that the rock was smitten with
a rod and that the water gushed forth in the best biblical
tradition. However the section drawing below evidences
too plainly to the contrary - a laborious business of drilling
and pipe fitting. Smiting with a rod would have been easier.





Palmer Park, Colorado Springs, Colorado



Mount Tamalpais, California

STONE DRINKING FOUNTAIN IN DEVELOPMENT

The two fountains above-pictured continue to exploit attractively the naturalism characteristic of the rock fountain shown on the facing page. The subject at Crater Lake National Park is a single native stone with top hollowed out. The examples below begin to take on familiar bubbler form. One is still single stone but roughly squared; the other is polythetic but involves fewer stones than occur in the more sophisticated bubbler pedestals that follow. At this stage the step for the accommodation of little people becomes almost standard equipment for the drinking fountain.



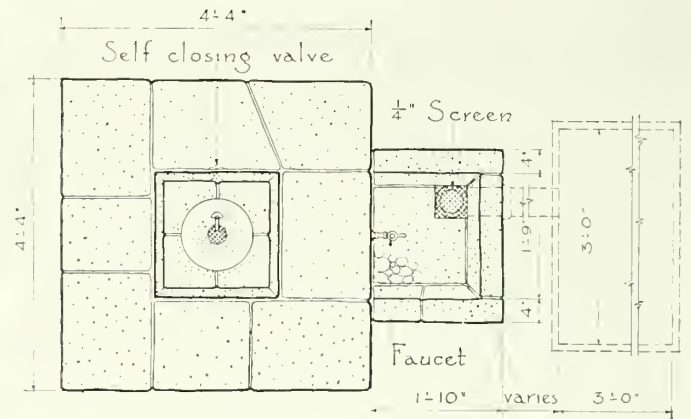
Crater Lake National Park



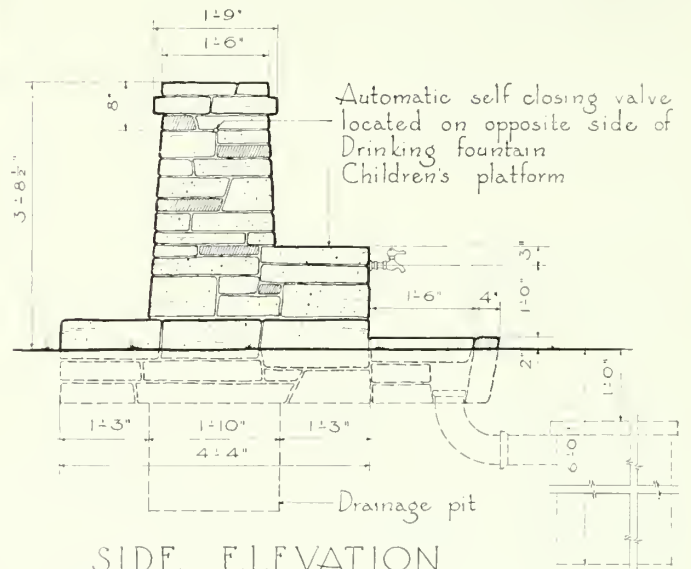
Steckel County Park, California



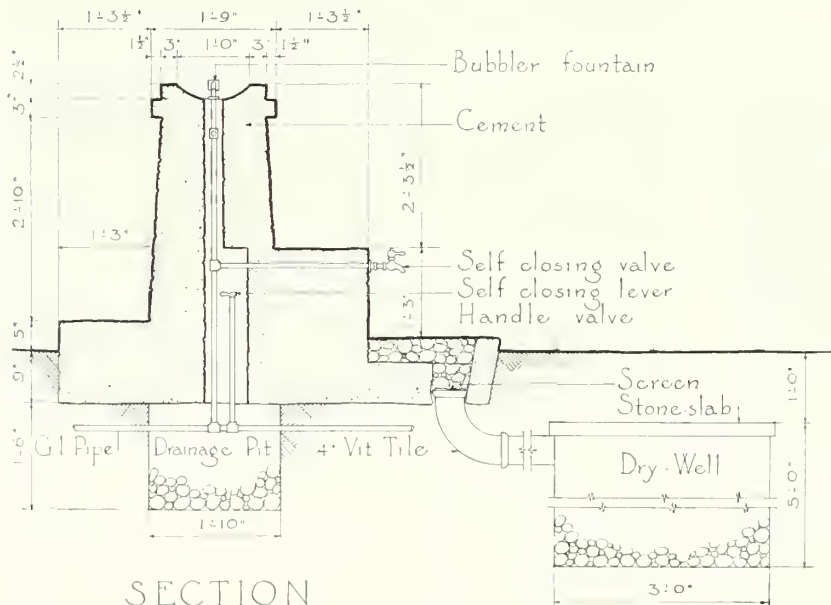
Millersylvania State Park, Washington



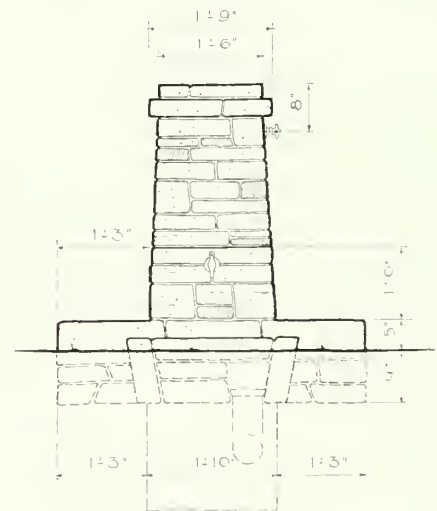
PLAN



SIDE ELEVATION



SECTION



FRONT ELEVATION

Scale $\frac{3}{8}$ " = 1'-0"

Bubblers Letchworth State Park New York

This stone drinking fountain is generally typical of this facility as built in many parks through New York State. Designed with sanitary bubbler and step to make it accessible to small children, and with low tap for the filling of buckets above the gravel-filled sump receiving the waste, all essential factors are met without over-elaboration.



Bonham State Park, Texas



Cook County Forest Preserve, Illinois

MASONRY PEDESTAL DRINKING FOUNTAINS

Surrounding this panel are colloquial renderings of the basic masonry pedestal detailed on the facing page. It is interesting to study this array of subjects for differences in characteristics of stone and workmanship, scale of masonry units, and the surprising variety that can prevail within narrowly fixed limits. Thus there are three varieties rather rigid in outline and character, mounted on platforms at or near grade level. Features of the two other subjects are recess to receive pail, buried natural boulder to serve as stepping stone, and pedestal of markedly horizontal coursing suggesting ledge rock.



Sibley State Park, Minnesota



New Salem State Park, Illinois



Foster County Park, California



Lake Worth Metropolitan Park, Fort Worth, Texas



Pere Marquette State Park, Illinois



Spring Mill State Park, Indiana



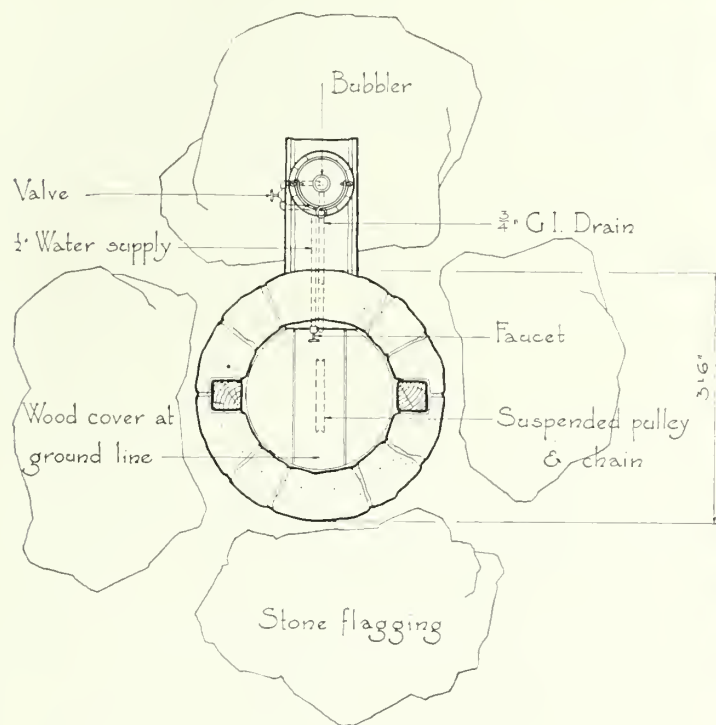
I & M Canal State Park, Illinois

MISCELLANY OF DRINKING FOUNTAINS

Above is a bubbler with circular pedestal, set in the recess of a retaining wall—uncommon features. The column at the left ranges fountains equipped with two or more bubbler fittings, culminating at lower left in a development that begins with the pious idea of recalling an ancient well curb, only to fall from grace when it breaks the commandments for good masonry. Directly below is a well curb, roofed, and somewhat in the stride of the unusual specimen detailed on the facing page.



Bastrop State Park, Texas

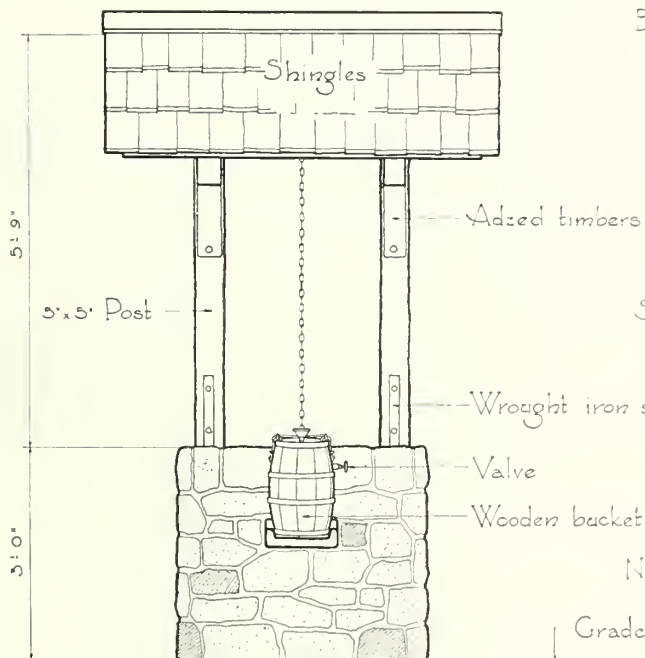


PLAN

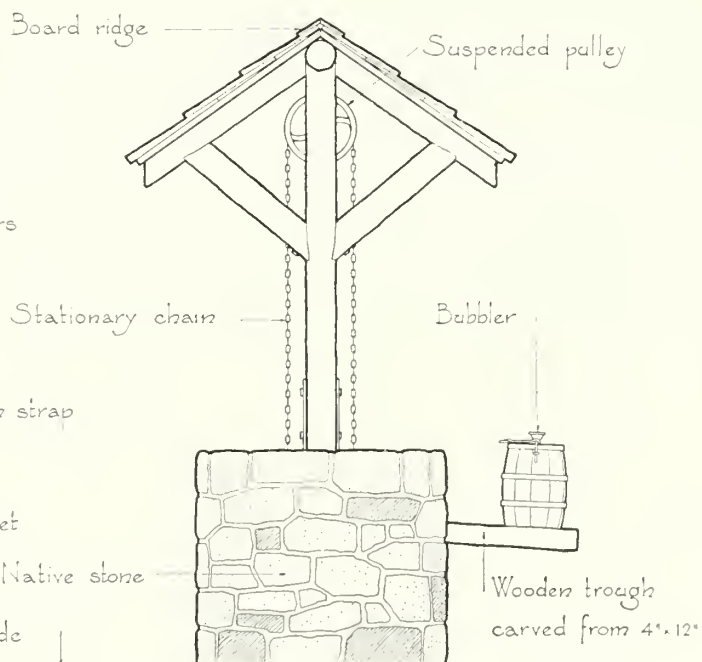


Drinking Fountain - Ledges State Park - Iowa

Mannered and perhaps forced, if you will, but capable of inspiring in many of us a recall of things long gone -- not the least among the more subtle benefits a park can offer.



FRONT ELEVATION



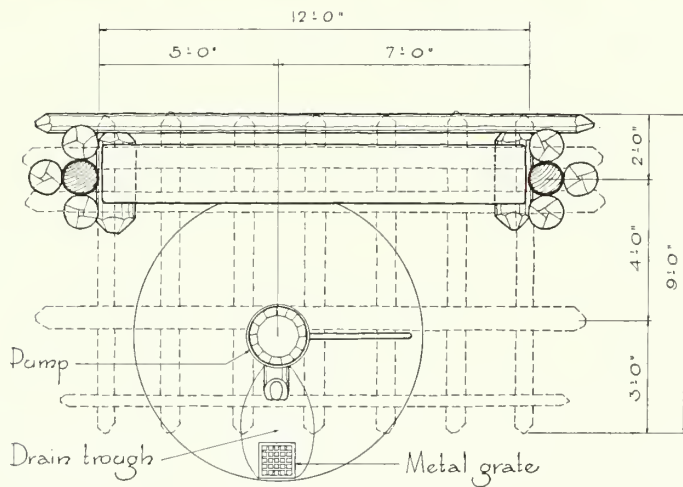
SIDE ELEVATION

Scale $\frac{3}{8}$ " = 1'-0"

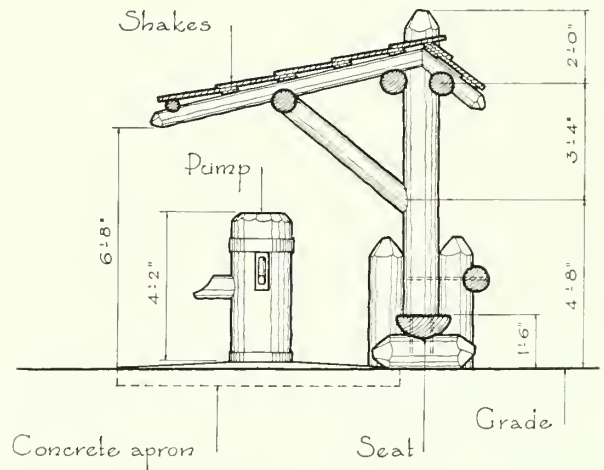


Pump Shelter
Crowley's Ridge State Park - - - Arkansas

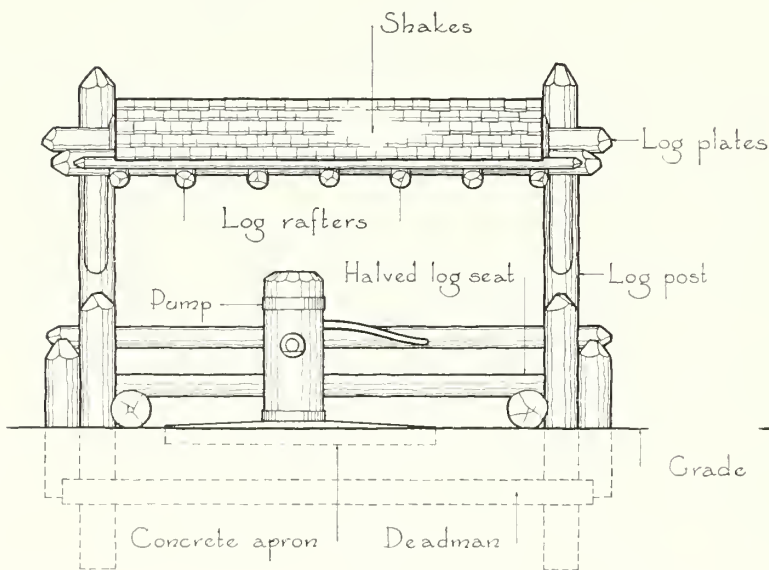
There is a rakish spontaneity in this shelter-for-pump that is very winning. It is unspoiled by the over-professional touch, which is likely to wither the essential personality of primitive construction in its too conscious effort. The iron-banded log-encased pump is a detail of interest.



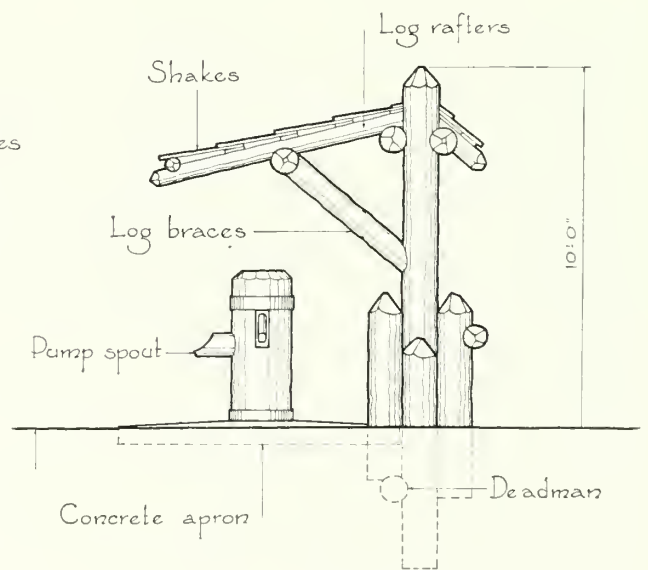
PLAN



SECTION



FRONT ELEVATION

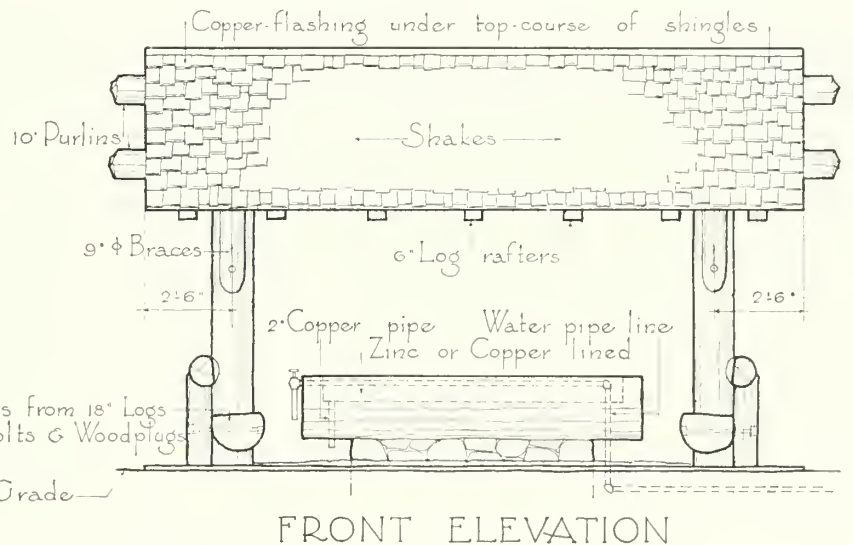
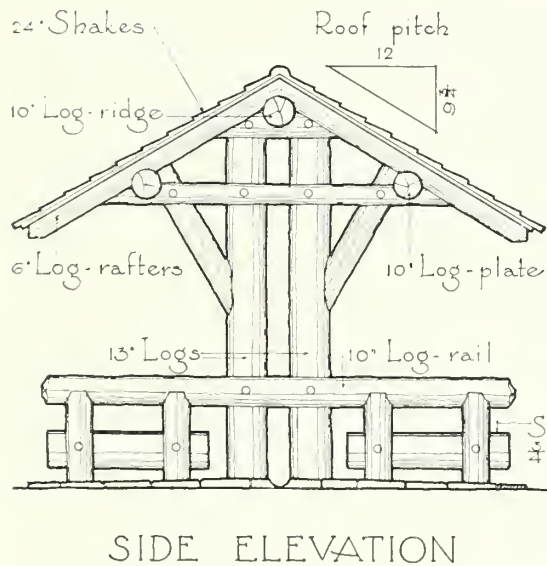
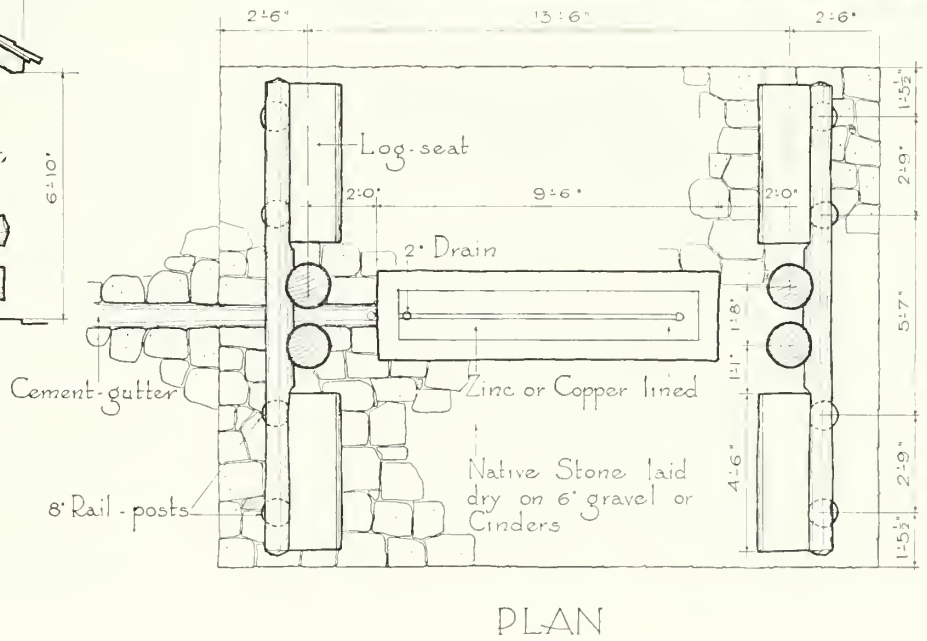
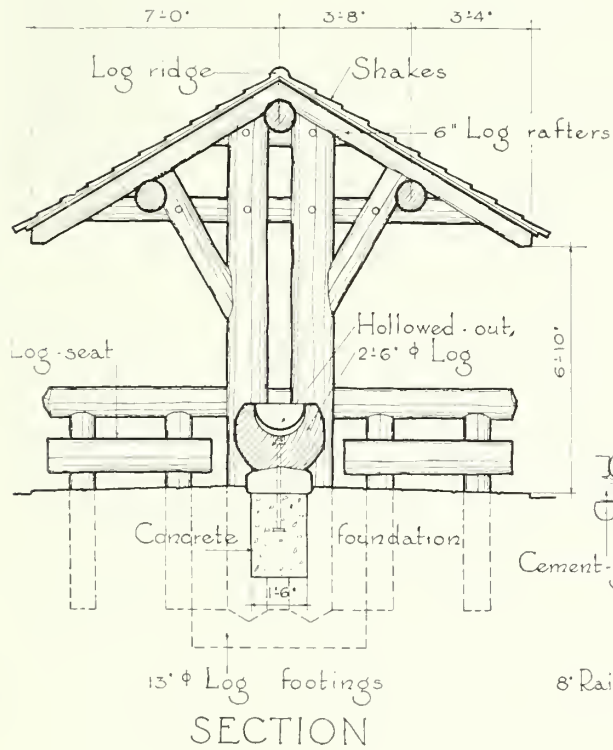


SIDE ELEVATION

Scale $\frac{1}{8}$ " = 1'-0"

Well Shelter - Itasca State Park - Minnesota

Certainly exempt from any accusation of 'twigginess' this little structure perhaps exemplifies ideal proportions for a truly rustic construction. The idea of hollowed-out log as a receptacle for the piped spring water is novel. The ragged shake roof is particularly well-done. There is neither economy of materials nor of originality to detract from this example.



Scale 1/8" = 1'-0"



White Pine Forest State Park, Illinois



Willow Springs State Park, Illinois



Starved Rock State Park, Illinois

PUMP AND WELL SHELTERS

The town pump in the open spaces can be variously and agreeably sheltered. Illinois is here represented by three examples which speak with a considerable range of vocabulary. These evidence thoughtful design, the one at upper left having especially pleasing, sturdy proportions. The shelter directly above is roofed with slabs, never a very positive weatherproofing. Below are illustrated a pump shelter in the West and a spring shelter in the East. These may not be strictly representative of standards of scale and proportion generally prevalent in these broad regions and so an odious comparison which might be drawn is not indulged in.



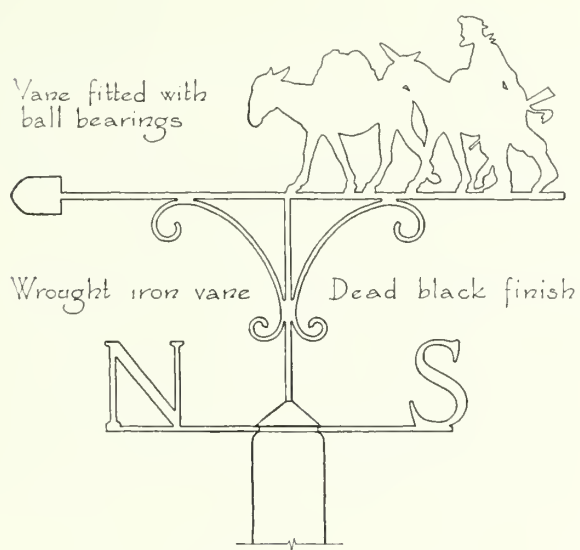
Custer State Park, South Dakota



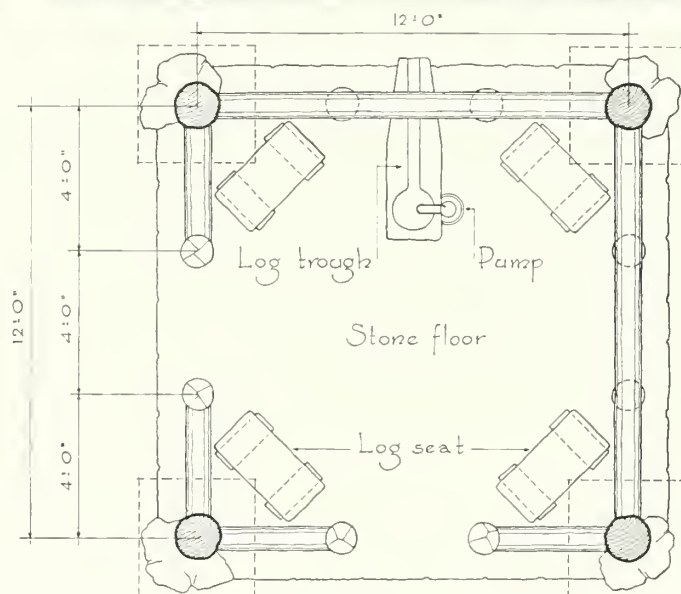
Lost River State Park, West Virginia

Pump Shelter - Custer State Park - South Dakota

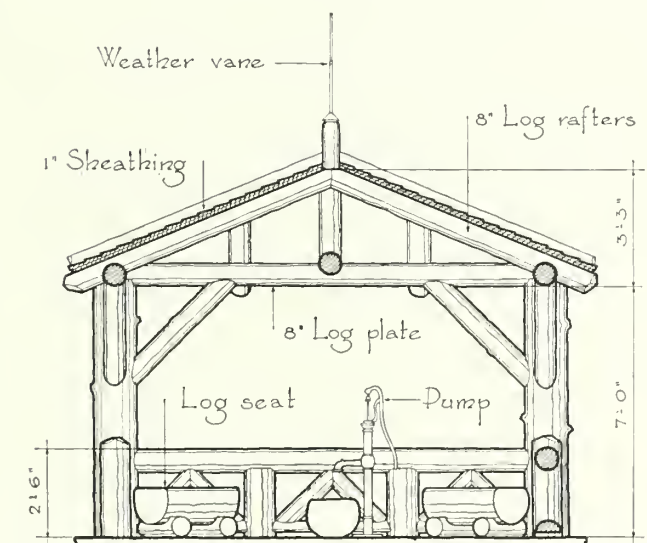
A shelter altogether amiable except that its rugged timbers put to shame the surrounding tree growth. In this it sets a proper goal for the trees to strive for and attain in due course, and evidences a degree of durability to last out their present embarrassment. Its pleasing proportions and appropriate weather vane merit attention.



DETAIL OF WEATHER VANE
Scale $\frac{3}{4}$ " = 1'-0"

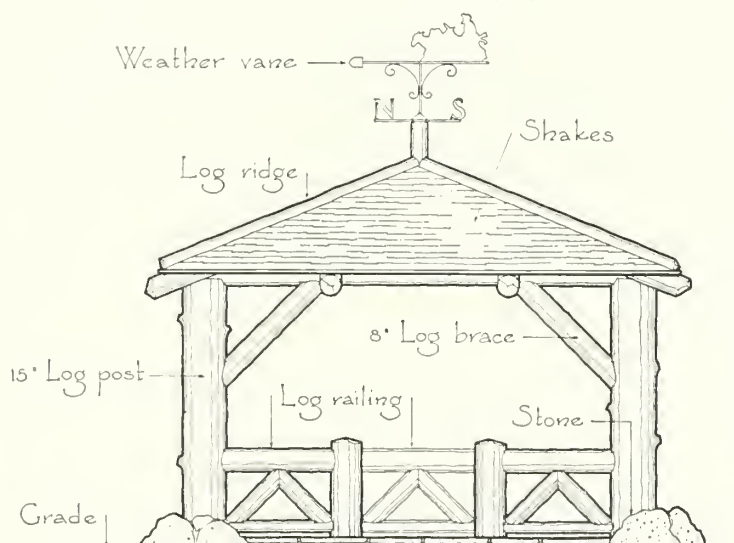


FLOOR PLAN



SECTION

Scale $\frac{3}{16}$ " = 1'-0"

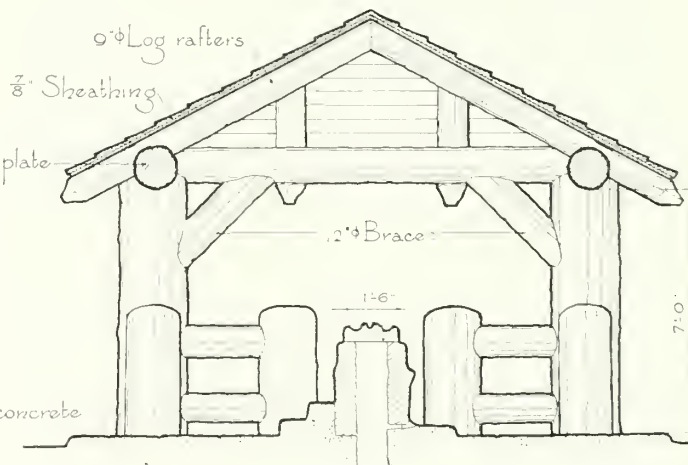
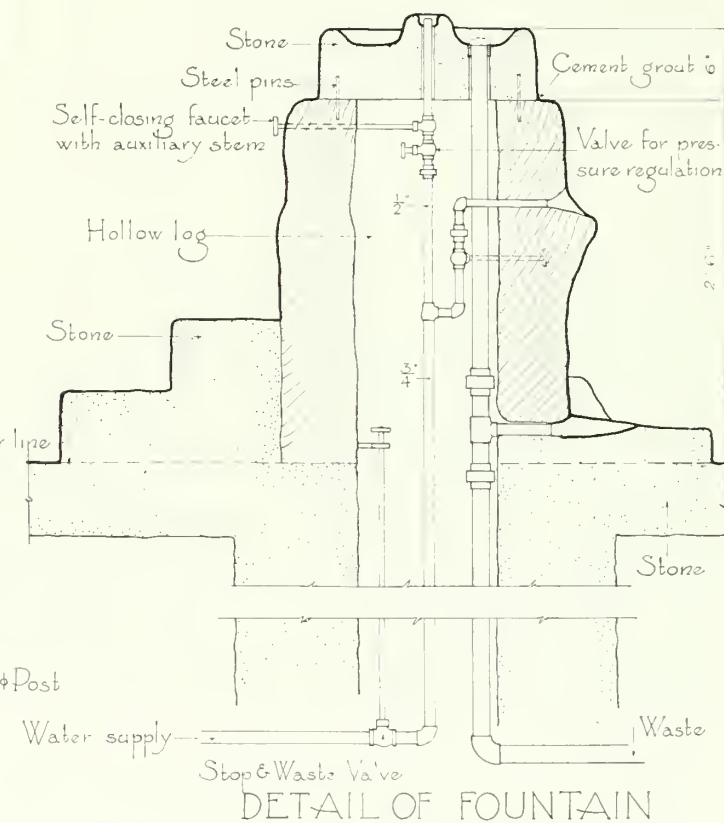
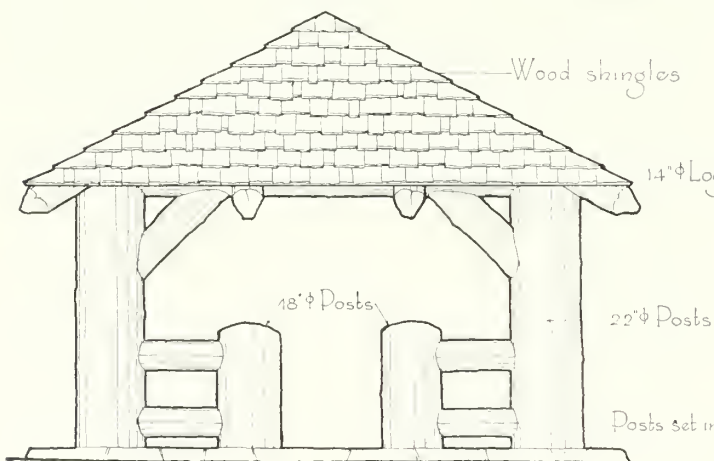
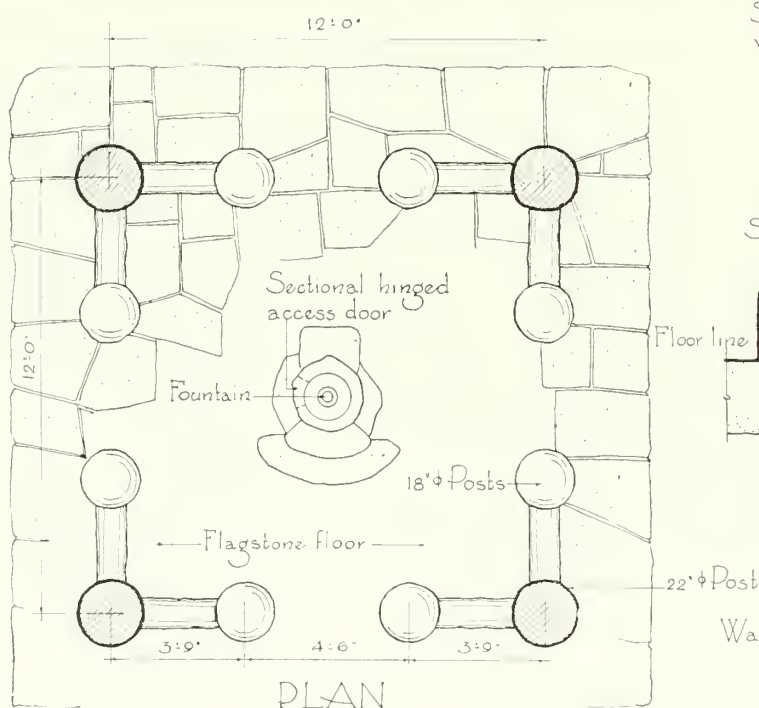


ELEVATION

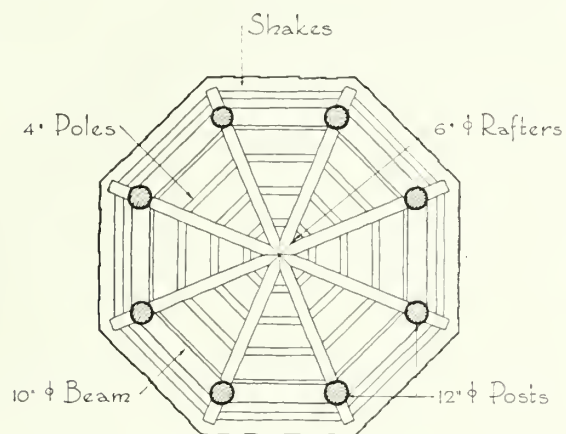


Water Fount Building
Lake Guernsey State Park - - - Wyoming

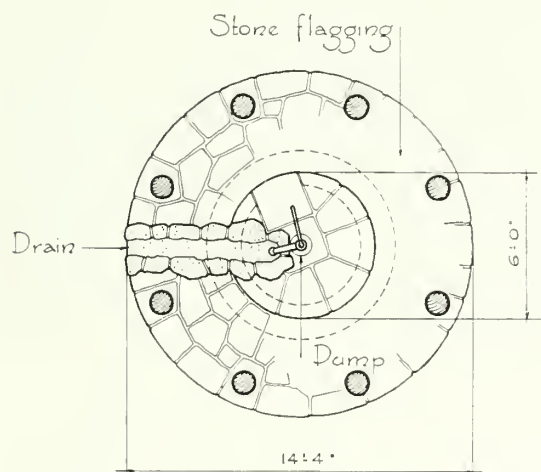
Sturdy perhaps to a fault but erring in the direction that is never so objectionable as the fault of frailness. This shelter houses a drinking fountain created from a hollow log and piped for bubbler and tap for the filling of pails.



Scale 1/8"=1'-0"



ROOF PLAN

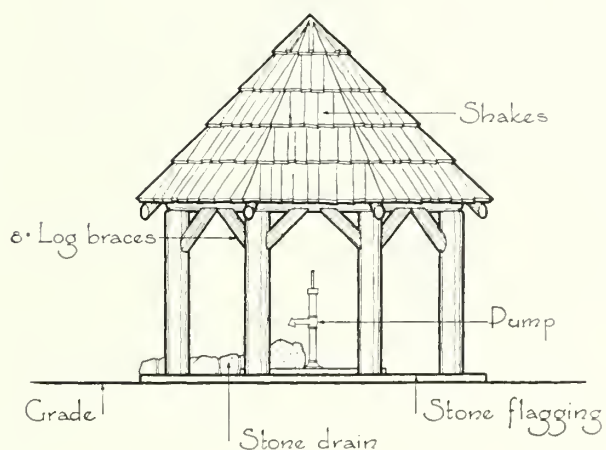


FLOOR PLAN

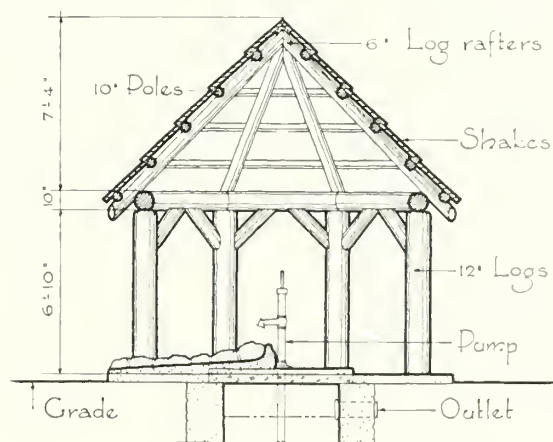


Pump Shelter - Moran State Park - Washington

To provide shelter at a pump, buildings of octagonal or hexagonal plan have been seldom used, yet seem well adapted to the purpose. The "close-up" of this one is unflattering, cropping as it does its surroundings, which in the actual, seem very much a part of it.



ELEVATION

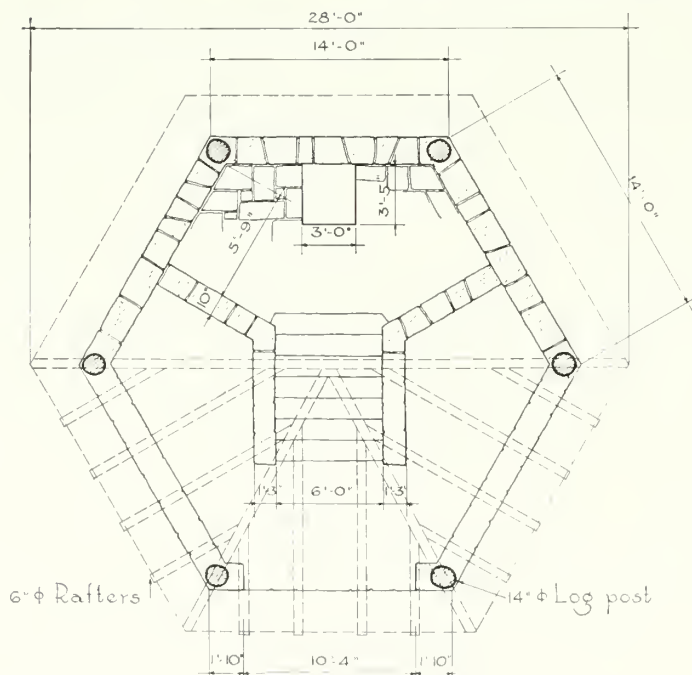


SECTION

Scale 3/4"=1'-0"



Spring House, Boyle Metropolitan Park, Little Rock, Arkansas



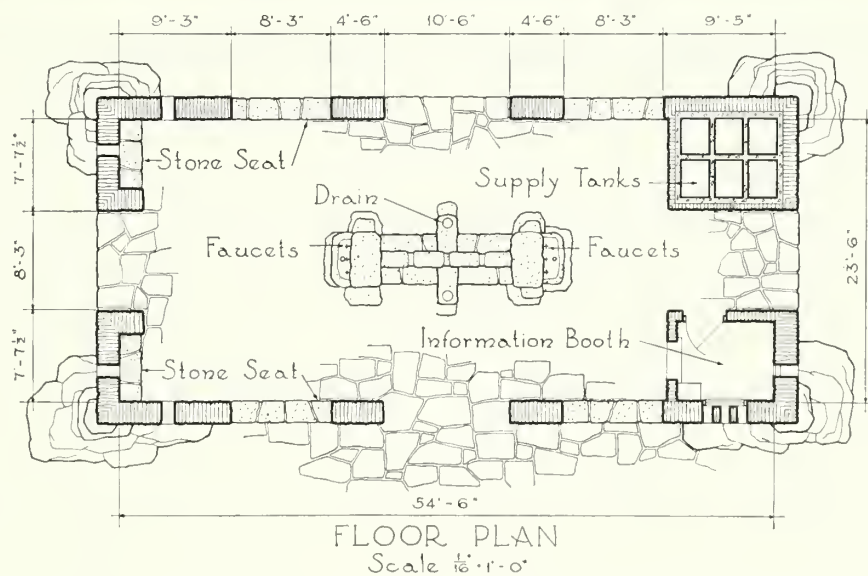
HALF ROOF & FLOOR PLAN

Scale $\frac{3}{32}$ " = 1'-0"

If a rustic structure may ever properly be termed a temple, here is one. A veritable shrine for a woodland spring, this shelter seems in every detail beyond legitimate criticism. Roof texture, "whittled" rafter ends, character of stone work—all combine to render a structural symphony. Even the almost invariably unpleasant perching of a log post upon a built-up rock base does not here seem an offense. There is invitation in the width of the approach and in the well-shaded interior with its short flight of steps down to the level of the spring.



Bromide Pavilion, Platt National Park



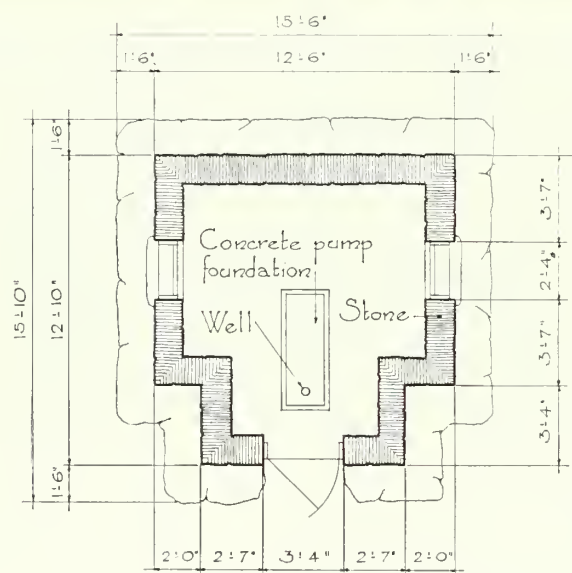
Distinctive features of this park are the many springs having mineral properties. This structure shelters a bromide spring. It is something of an outdoor equivalent of the "Pump Room" which at Bath and other watering places in the England

of Beau Brummel was a foregathering place of great social importance. This pavilion gives onto a terrace which looks out over a sunken area centered by a formal pool and surrounded by the benches, seen in the illustration.

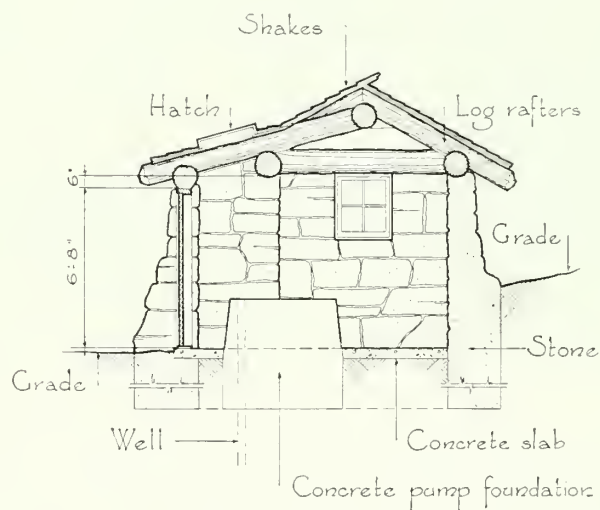


Pump House - Lake Murray State Park - Oklahoma

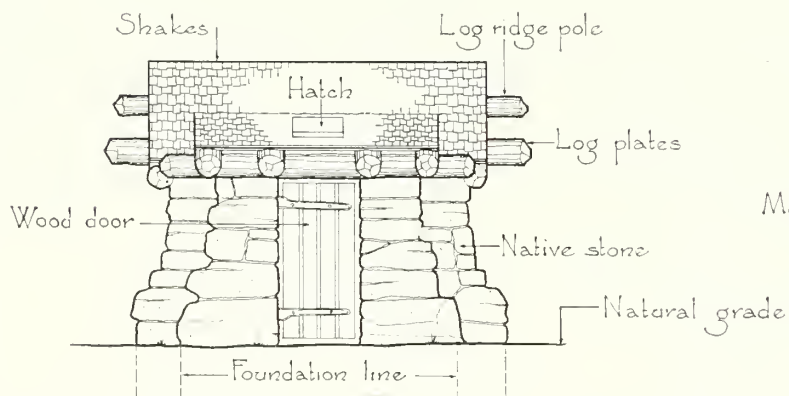
A characterful little building that makes a strong case for the proposition that the most minor facilities in parks are deserving of great pains in designing and executing. If the pump house of utterly prosaic purpose can suggest with a decent restraint the habitation of the Three Bears, or the Big Bad Wolf, why not? The pleasant gesture does not hamper its practicability, as witness the hatch for the pulling of the well casing.



FLOOR PLAN

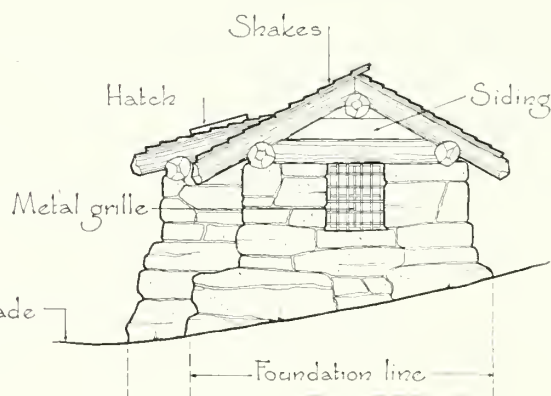


SECTION



FRONT ELEVATION

Scale 1/8"=1'-0"



SIDE ELEVATION

This little structure will benefit greatly in appearance by the rising waters of a created lake from which the water supply will be drawn. The lake level will climb halfway up its spread foundation and much improve its proportions. Readers are asked to visualize this change in appraising the building with a critical eye. This pumphouse and the one shown directly below relate definitely, in an architectural sense, to the Lake Murray pumphouse detailed on the facing page.



Pumphouse, Devil's Den State Park, Arkansas

The bulk and picturesqueness of this pumphouse result from the provision of settling basins, roofed over by the wing to the right. The vigorous scale of the masonry and roof timbers and the thick and raggedly coursed shakes of the roof effect a harmony in which no false note is to be detected. The main portion of the building, as the hatch visible in the roof suggests, houses the pumping machinery.



Pumphouse, Robbers Cave State Park, Oklahoma

In character this structure stands at some point between the heavy rusticity of the pumphouses we have just seen and the more finished building of similar purpose delineated on the following page. Here there is unmistakable suggestion of ancient minor farm buildings in Italy, probably not consciously sought, and if unwarranted as precedent for a structure in our parks, nevertheless far from unpleasant.

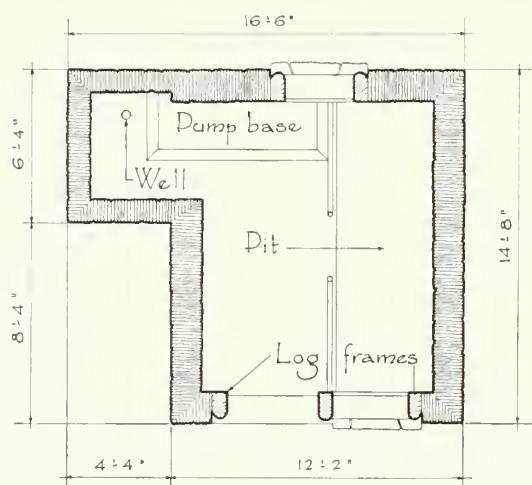


Pumphouse, Pere Marquette State Park, Illinois

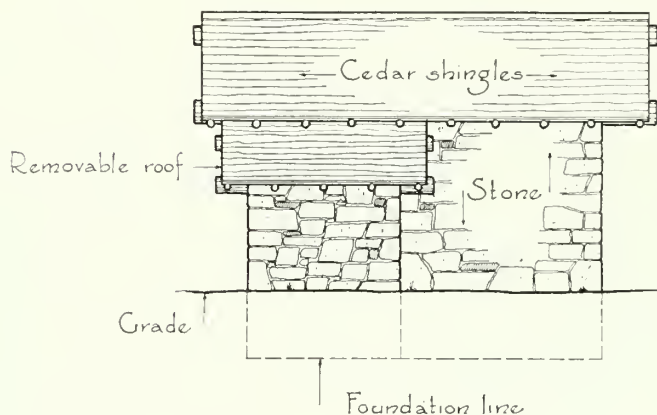


Pump House - - Wilderness State Park - - Michigan

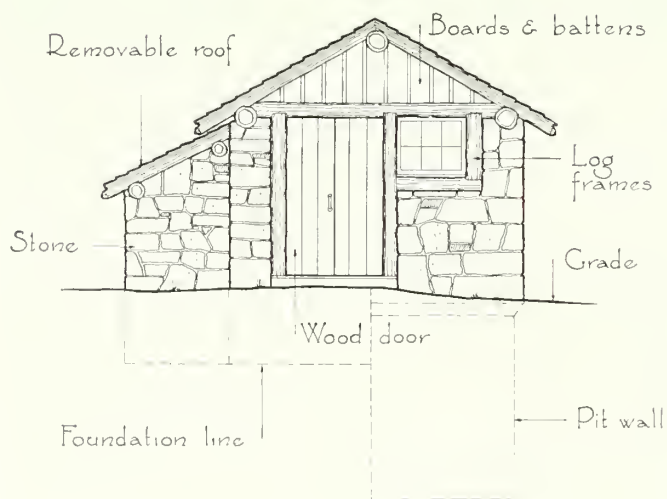
This little building succeeds in being at once completely practical and extraordinarily attractive. This, in a few words, defines the objective so consciously pursued in most pretentious park structures, and very often achieved, probably with a certain casualness, in the minor ones. Practicability is evident in the wide doorway and in the lean-to roof detached from the main roof and readily removable whenever the well casing must be pulled for repairs.



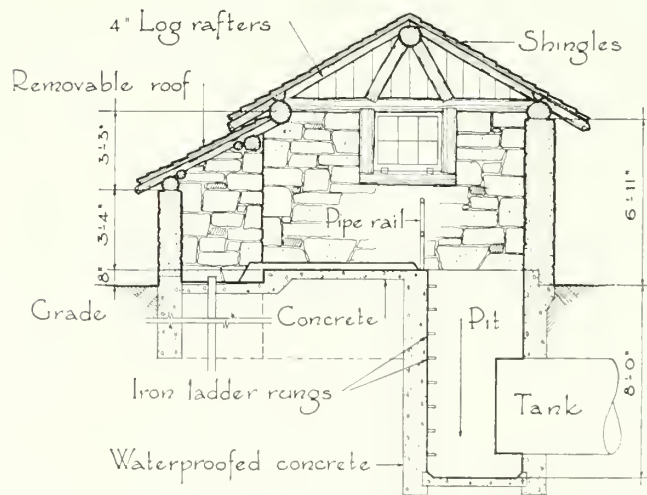
FLOOR PLAN



SIDE ELEVATION



FRONT ELEVATION

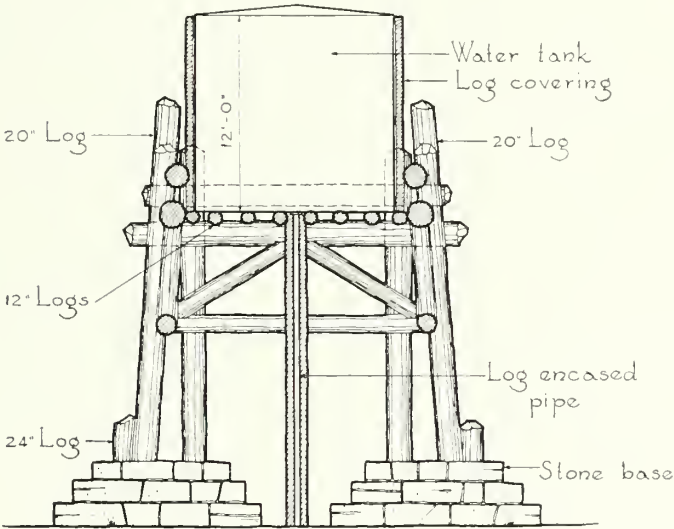
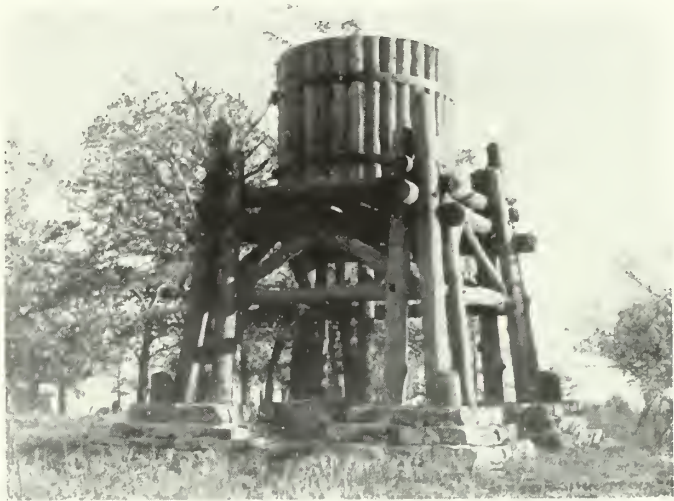


SECTION

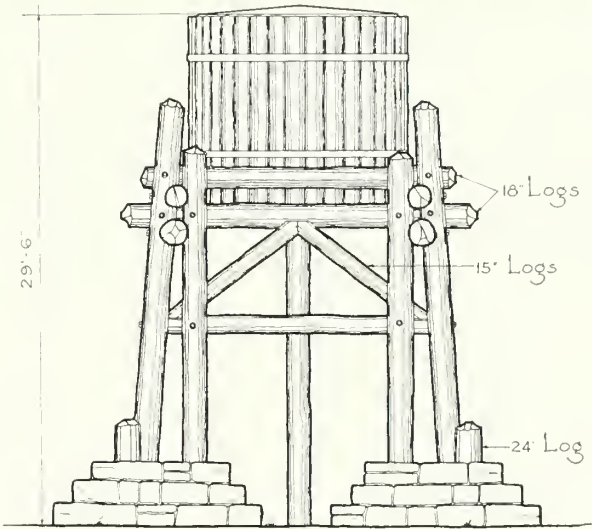
Scale 3/4"=1'-0"

Water Tank - Mt. Nebo State Park - Arkansas

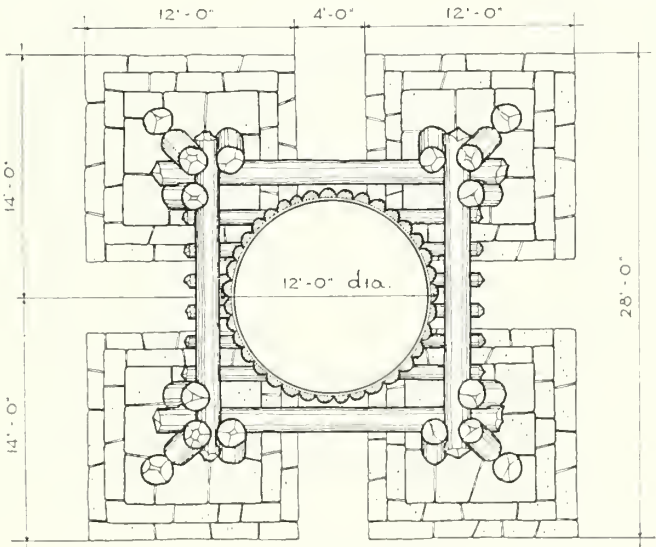
A structure of practical purpose, which, satisfied to parade its function forthrightly, quite satisfies us. Here is no mistaken urge to appear a ruined watchtower,--no overweening affectation of being some more aesthetic something which it is not. All honor to the greater glory of beauty so openly and honestly arrived at.



SECTION



ELEVATION



PLAN

Scale $\frac{3}{32}$ " = 1'-0"

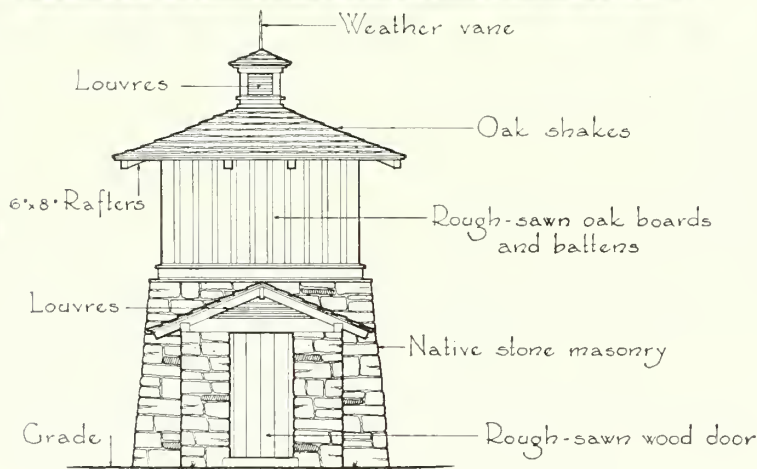


Pump House

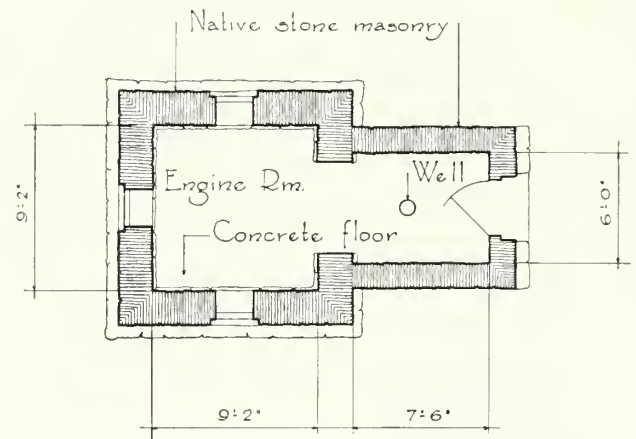
Bonham State Park

Texas

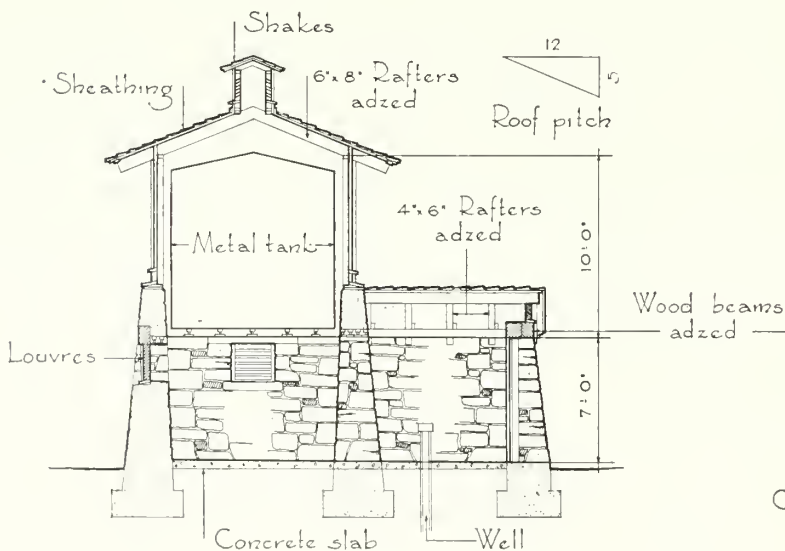
Elevated water tank and shelter for a pump are combined in this attractive building. There is definite character to the masonry, with its variety of unit sizes and deeply raked joints, and to the board and batten construction by reason of the heavy battens. This character persists in other structures at Bonham, as witness the boathouse, bathhouse and entrance pylon, elsewhere illustrated.



ELEVATION

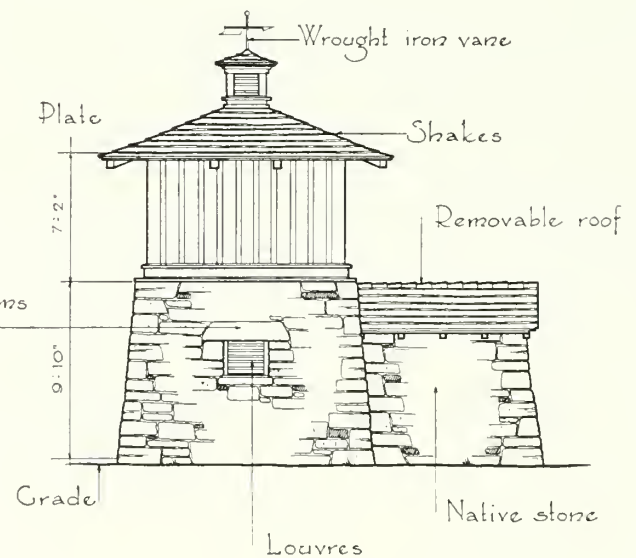


FLOOR PLAN

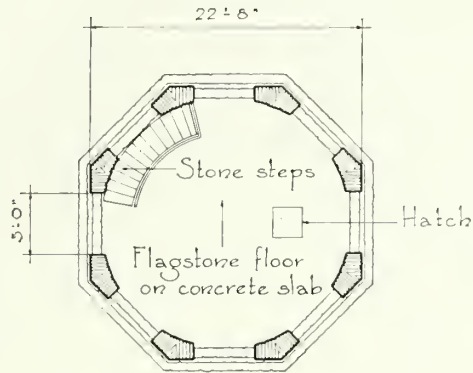


SECTION

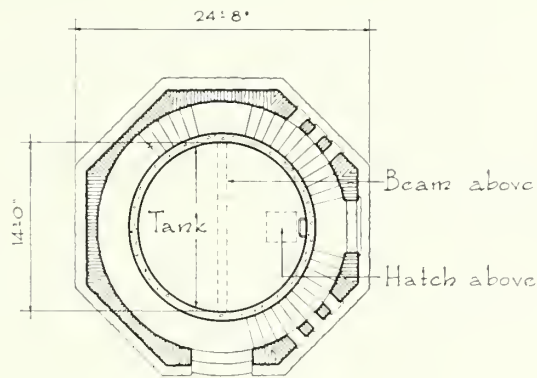
Scale $\frac{3}{32}$ " = 1'-0"



ELEVATION



PLAN AT LOOKOUT



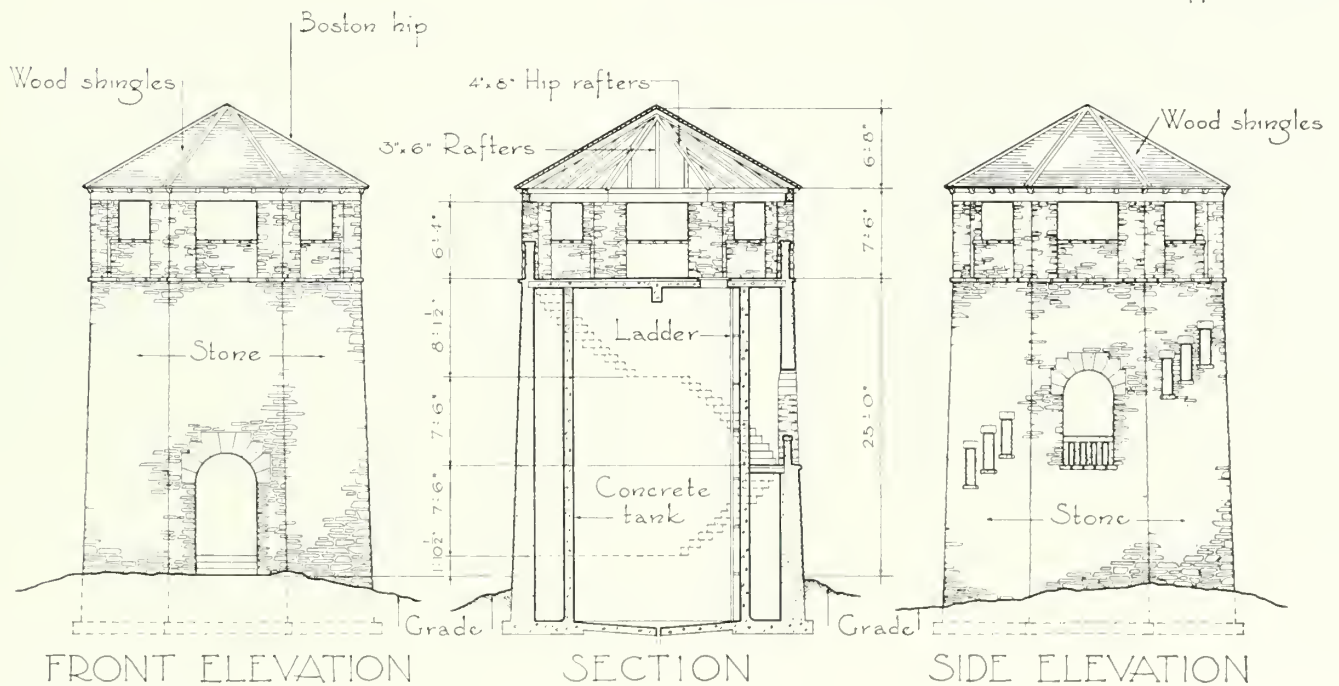
PLAN AT TANK

Scale $\frac{1}{16}'' = 1'-0''$



Observation Tower - Lake Taghkanic State Park - New York

The case for combining in one structure a required elevated storage tank and a desired elevated observation point has been stated. Here is an exhibit in support of it.





Crowley's Ridge State Park, Arkansas



Lake Murray State Park, Oklahoma

WATER TOWERS

Above, a water storage tank enclosed by rock wall so well blended to rocky site as to constitute something of a puzzle and suggest a "Find the Water Tower!" caption. Below, a more revealing rendering of masonry enclosure. Both provide lookout platforms, reached by outside stairways. At the left, two wood-framed towers of greater elevation and of contrasting exterior treatments. It should be realized that the vertical slab surfaces of the Palmetto State Park tower do not assume to appear the structural support, but rather the curtain enclosure, of the trussed timber structural frame.



Palmetto State Park, Texas



Mother Neff State Park, Texas

COMFORT STATIONS AND PRIVIES

➤ IT IS GENERALLY CONCEDED that toilets are the most necessary among structures built in natural parks, and that if only safe water and proper toilets are provided in these areas, the essentials of development have been accomplished. It has even been said that those who will not lead the field in proper sanitation should get out of it and allow those who are “not ashamed to be proud of their toilet buildings” to take over.

In general usage any distinction between “comfort station” and “privy” may be merely one of gentility of phrase. Within this discussion, and perhaps more generally distinguishing than is assumed, “comfort station” applies to buildings equipped with flush toilet facilities and “privy” to those equipped with nonflush toilet facilities.

It is elected herein to consider the more modern comfort station at greater length than the more primitive privy. The former, for the higher standard of sanitation it provides, is the unqualified recommendation of the National Park Service and the great majority of public health agencies for all park toilets wherever conditions, physical and economic, make its adoption possible. This recommendation embraces a positive sewage disposal by natural processes, and decries, along with the pit toilet, treatment by chemical processes alone. The chemical sterilization of effluent, it should be understood, is quite another matter. Such is often desirable subsequent to a sewage disposal treatment by bacterial action.

For those who may be concerned with the details of sanitation in respect to park toilets, the National Park Service Engineering Manual, Part 700—Sewage Disposal, is cited.

If the comfort station is located in an area subject to freezing temperatures, and if at such times it will not be heated, provision must be made for completely draining all piping and fixtures. Whether or not to make a comfort station suitable for operation during freezing winter weather depends largely

on the volume of use, and the economics of each case is an individual problem. Sometimes limited winter use of such areas makes more reasonable the provision of temporary chemical toilets during those periods when a flush toilet must be drained or heated. Under such conditions it will probably be more satisfactory to erect small portable pit privies as discussed in the Manual of Engineering Design previously referred to.

In the park toilet building we have another facility not to be taken seriously as a landscape or architectural feature until every demand for sanitation and practical need has been properly met. Any economy in fulfillment of these primary requirements makes absurd any indulgence of a too impetuous urge to dress up the structure. The comfort station not a part of a building housing other park facilities is very properly so subordinated by location that there is little reason for embellishing it structurally. Preferable and usually more effective alternative is to screen both building and approach to it by planting and careful choice of site. The comfort station is often incorporated in a park building which combines other park needs. Linked up with a shelter or concession building, or as part of a multiple use building designated as administration, it is forced to a certain elaborateness of dress that, as a half-hidden separate entity, it does not require.

When comfort stations are a part of buildings housing several facilities, it is generally desirable that direct outside entrance to them be provided in addition to any inside communication. Some park patrons may feel reluctant to make use of toilets requiring approach through what may not be conspicuously enough a public space. Access to comfort stations through a lodge or concession might imply availability only to guests or patrons of these. If intended for free use by the general public, there should be no confusing of the fact of accessibility.

The paramount practical need of proper sanitation implies first of all thorough knowledge of, and strict compliance with, all laws, ordinances, and other regulatory provisions of governing and jurisdictional agencies. Beyond these are other practical and aesthetic considerations which may not be disregarded. The importance of smooth and impervious materials for floors, walls, partitions, and other such interior surfaces is not to be minimized. Funds tend to be scant enough for the maintenance of readily cleaned and durable materials, and are certainly hopelessly less than adequate for the upkeep of materials without such merits. Ease of cleaning will determine the degree of cleanliness that will prevail over the long run. In consequence, any conscious effort at rusticity in suiting the exterior of the comfort station to park environment should be just as consciously forsworn on the interior. Equipment and materials conforming to present day standards of sanitation should be adopted for all interior details.

In the case of the comfort station there is obvious saving in cost to result from grouping men's and women's toilet rooms under one roof. When the facilities are of the privy type, separate structures for the sexes can be built at but little greater cost, and this is recommended. Privies are apt to be less soundly constructed than comfort stations; therefore, greater distance between the men's and women's toilets is desirable.

When comfort stations or privies serve both sexes under one roof, the arrangement of the separate entrances so that each section is suitably remote from the other is important. If on opposite sides of the building, the maximum in desirable separation of the approaches of course results. The approaches and entrances should be clearly marked. A substantial soundproof partition should completely separate the two toilet rooms, and in the case of pit privies there should be complete separation of the vaults serving the men's and women's sections. Unless vestibule and properly swinging door break the sight lines into the toilet rooms, an effective exterior sight barrier in the nature of a wall, trellis, or stockade

must be provided to screen the entrance opening.

Toilet buildings, whether comfort stations or privies, must be well lighted and ventilated, and properly protected from the weather. Windows should be placed above the eye level for privacy. When not so placed, and obscure window glass is resorted to instead, the windows can often be opened in summer only with sacrifice of privacy, or remain closed at a sacrifice of ventilation. Windows should so operate that it is possible to equip them with insect screens on the outside. A most practical toilet room window is hinged at the bottom to open inward with chain fastening, which gives some measure of protection against rain, wind, and snow, while providing continuous ventilation and opportunity for a screen on the outside. In milder climates, and elsewhere when winter use is not intended, there is a current tendency to make use of louvres rather than windows. These give a desirable maximum of ventilation, and may also be screened as effectively as windows against insects. However, unless louvred openings are very generously provided, the rooms are apt to be insufficiently lighted. Because ample light and ventilation are prerequisite to a clean and well-maintained room and go far to curb abuse by the using public, an abundance of window or louvred area is to be sought.

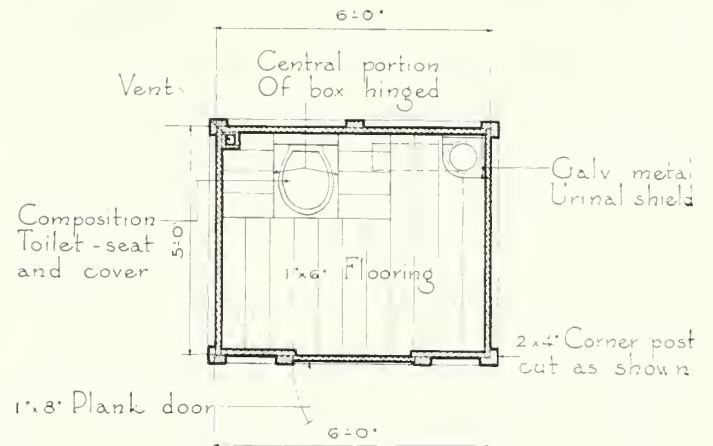
Doors to toilet rooms should always be self-closing, by the employment of a high-quality door-closer if possible, or failing this, a less costly but positive substitute device. If window or other openings are screened, door openings should, of course, be fitted with screen doors. The ventilation in summer will be greatly helped. All screening in equipment of toilet rooms must be at least 14 wires to the inch, and preferably finer. While galvanized or black-enameled wire-cloth is satisfactory for the more temporary buildings, bronze or copper employed for permanent structures will, by its longer life, more than offset the greater initial cost involved.

Readers scanning the drawings which follow are reminded to view these only through an architectural lens. Bifocal exploration seeking also details of sanitation will by intent prove unrewarding.

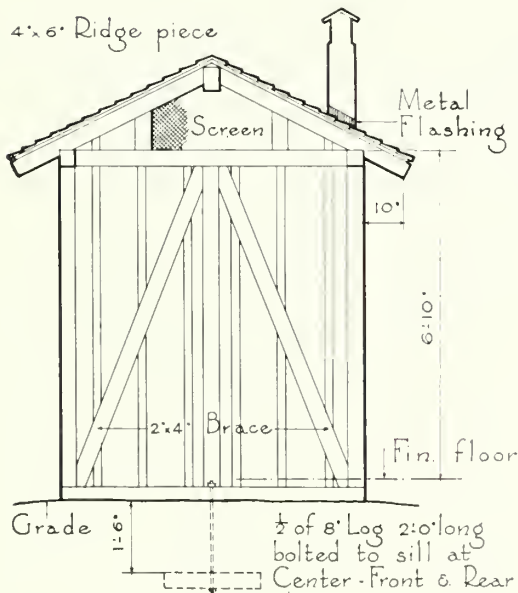


Privy - Mt. Tamalpais State Park - California

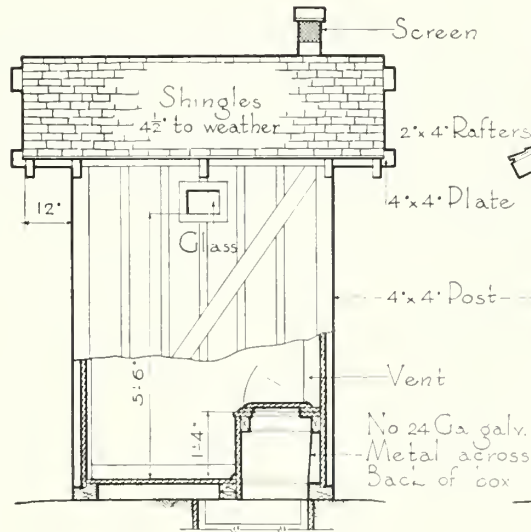
An unpretentious housing of toilet facilities that, with the benefit of properly retired location, would not be unsuitable in parks over a wide area. Its simple exterior is free of strictly regional characteristics. It can be built at small cost and is not unsightly. The wide overhang of the roof shelters the ventilation openings but makes for a dark interior where other light admission is as limited as here.



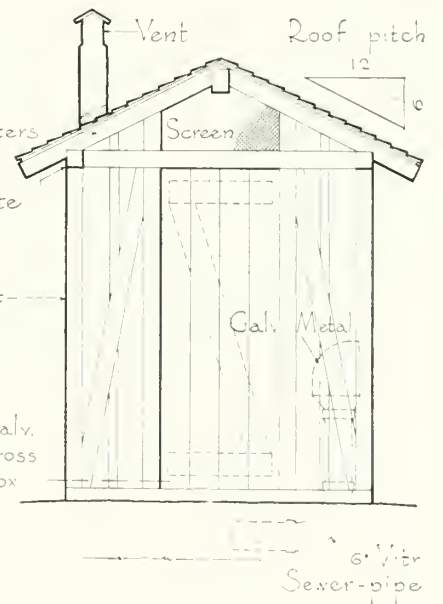
PLAN



REAR ELEVATION



SIDE ELEVATION
Scale 1/4" = 1'-0"



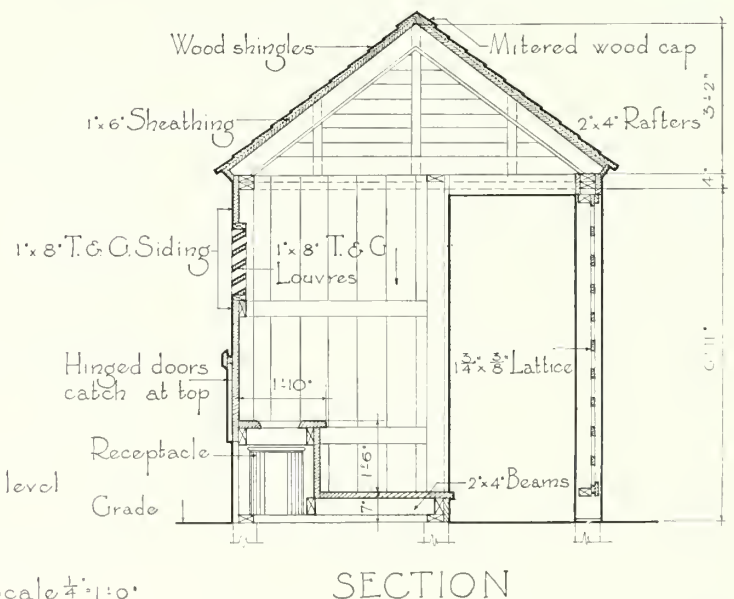
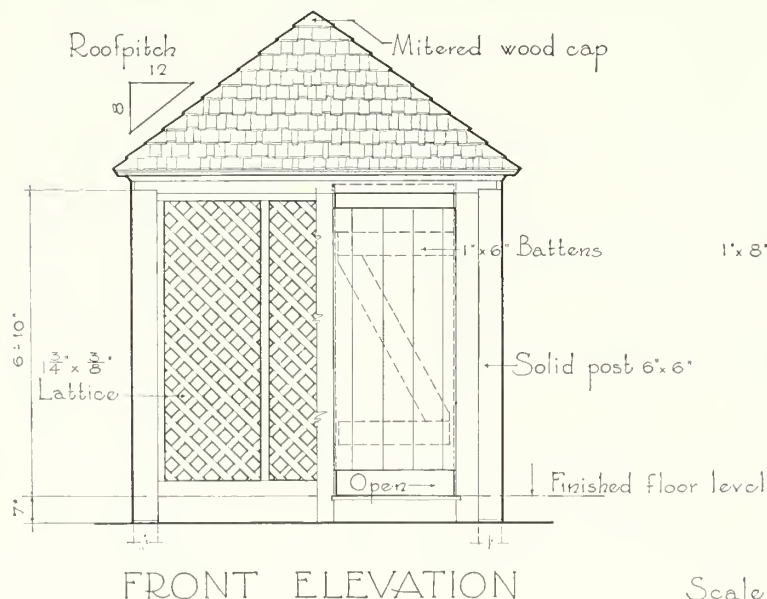
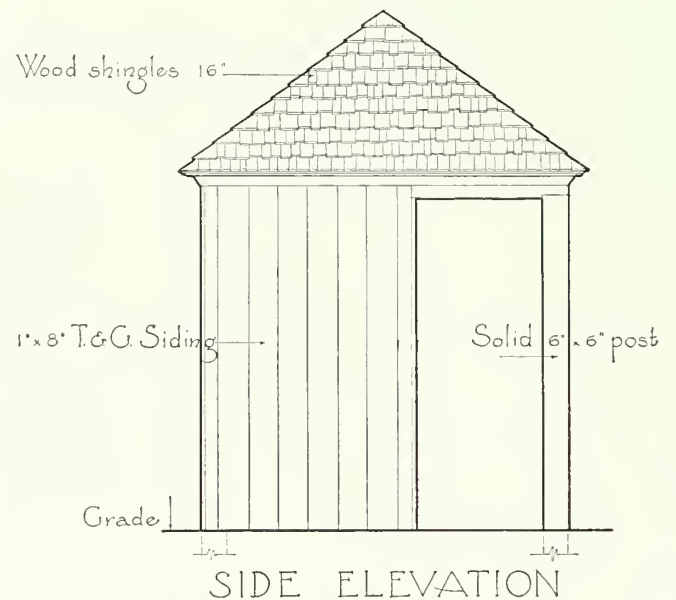
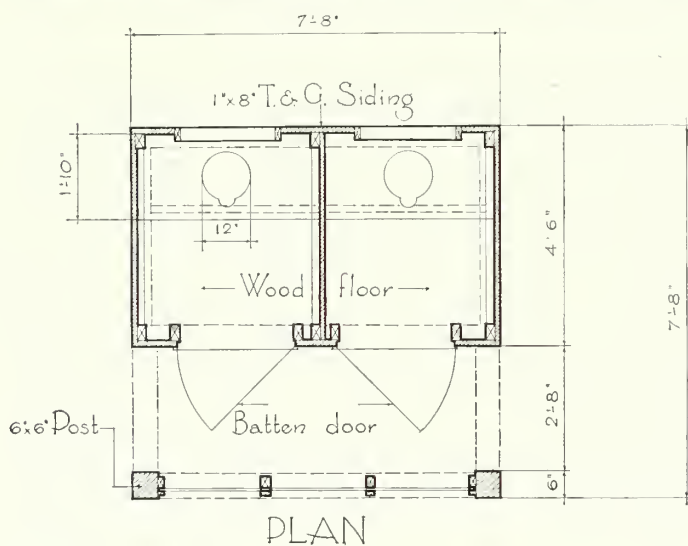
FRONT ELEVATION



Privy

Egg Harbor River Parkway - Camden County - New Jersey

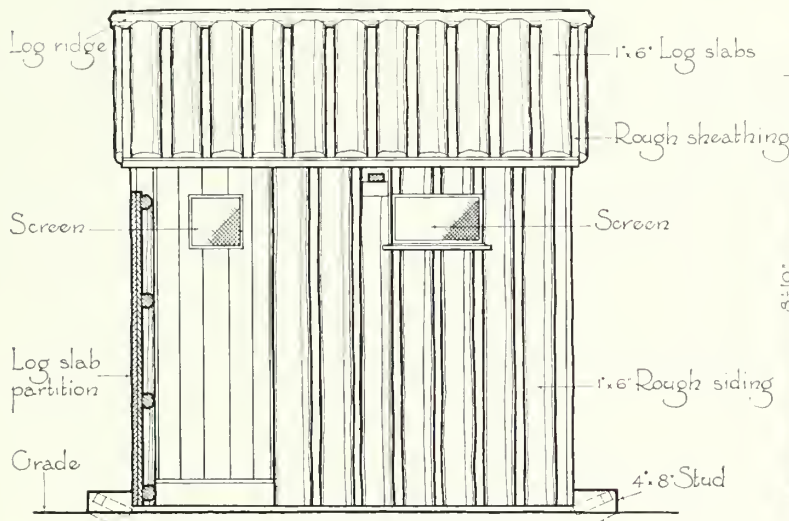
This privy is so unassuming and decorous in its externals as hardly to be an offense in any location, retired or not. It is the simplest expression of the type which allows direct outside entrance to each toilet stall, and might be expanded indefinitely to include more than the two stalls here shown. The screening of the doors by lattice is a desirable feature. The trim cornice is especially appropriate to so small a building.



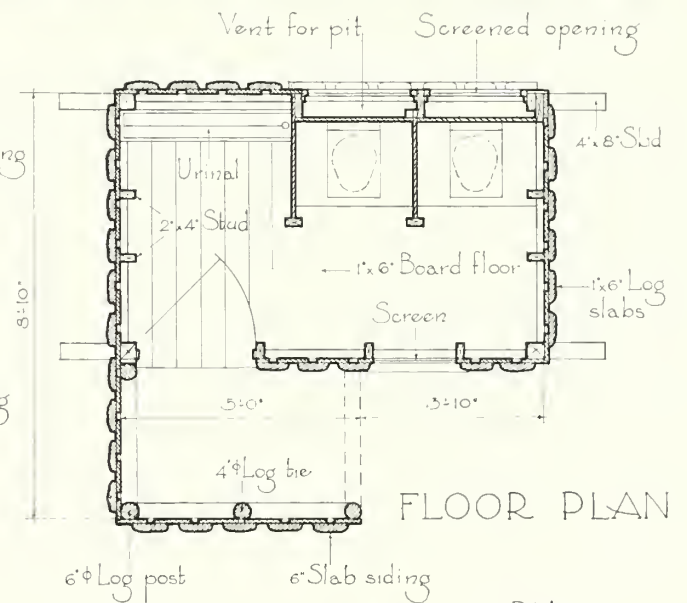
Scale 1/4" = 1'-0"

Privy - - - - - Marseilles State Park - - - - - Illinois

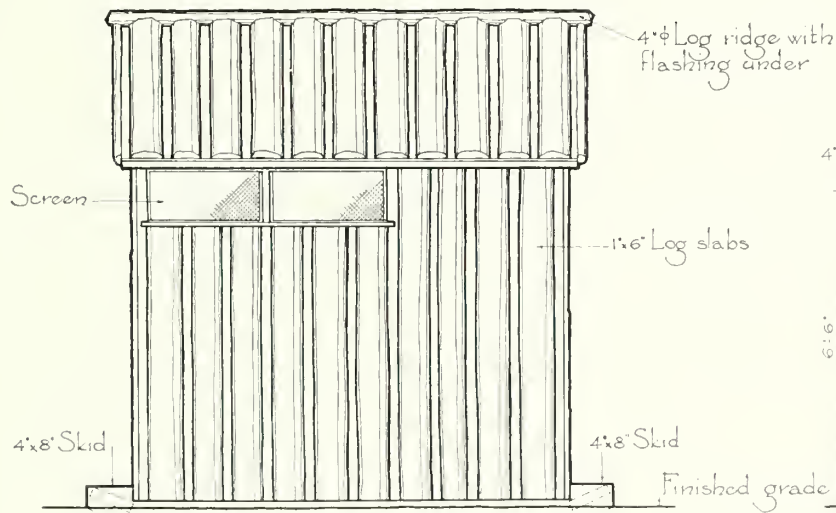
In connection with a picnic area which must be shifted periodically for purposes of recuperating a wornout site, a toilet facility on skids capable of being moved readily is of great practical advantage. The construction of slabs applied vertically over sheathing boards is one that gestures in the direction of pioneer woodcraft character at economical cost. The entrance door is well-screened by the stockade barrier.



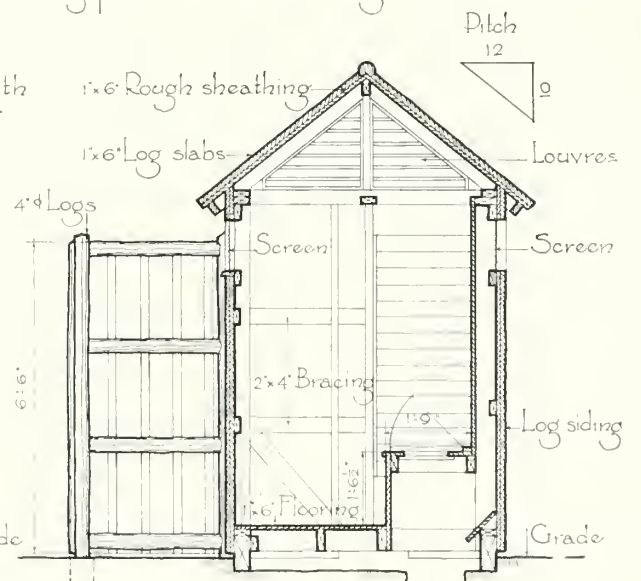
FRONT ELEVATION



FLOOR PLAN



REAR ELEVATION



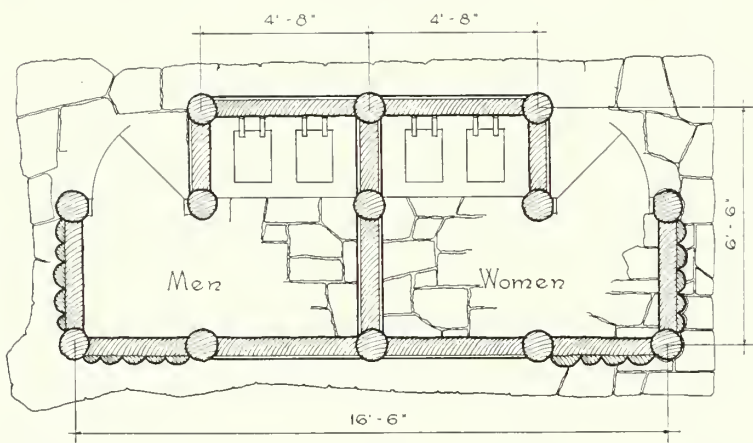
SECTION

Scale 4"=1'-0"

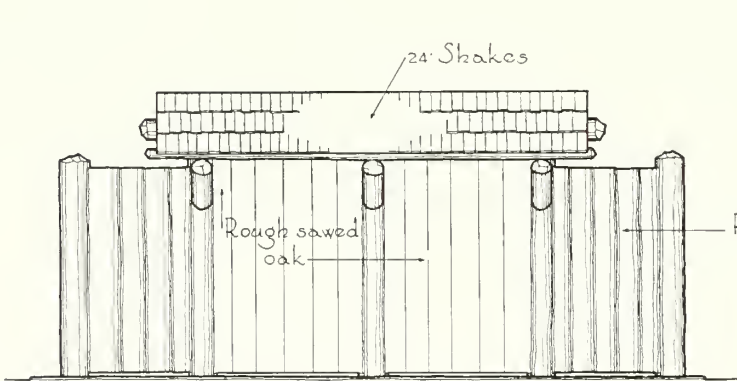


Privy Devil's Den State Park Arkansas

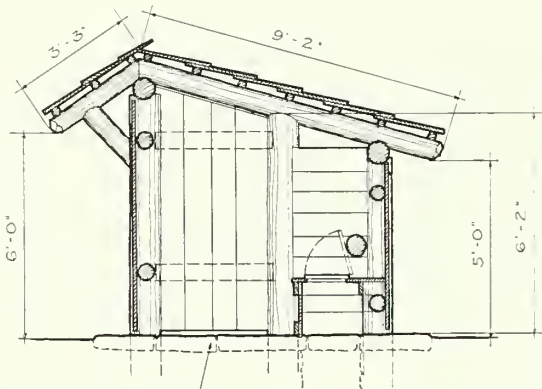
Certain unpretentious park structures, it will be observed, have a definite woods character -- a homespun propriety -- difficult to analyze. Here is one.



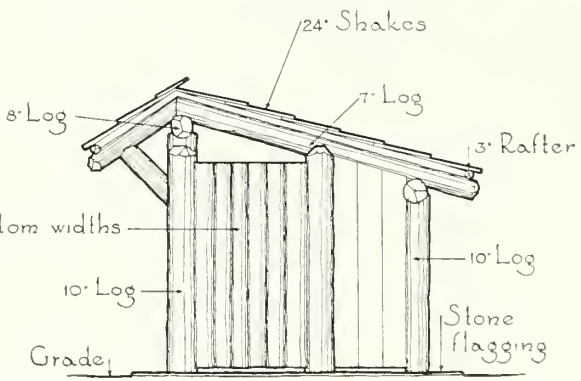
PLAN



FRONT ELEVATION

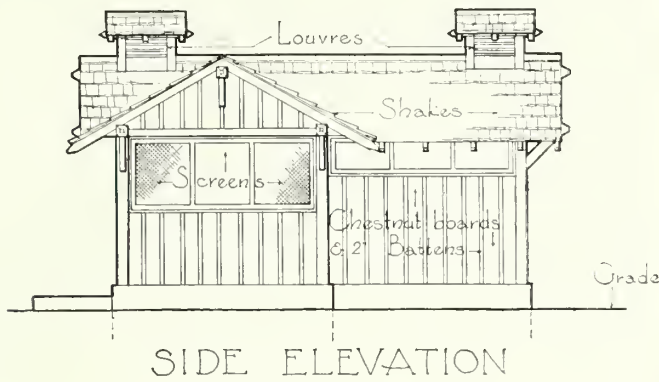


SECTION

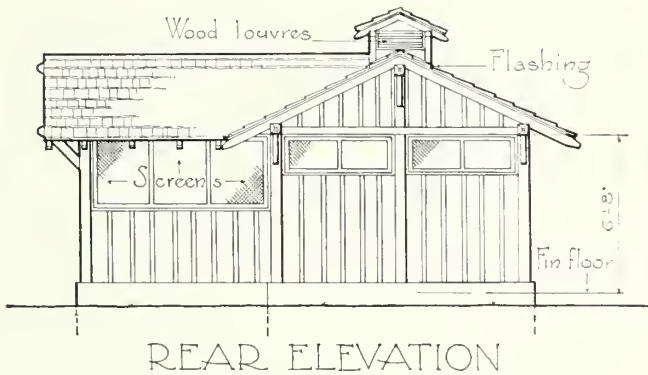


SIDE ELEVATION

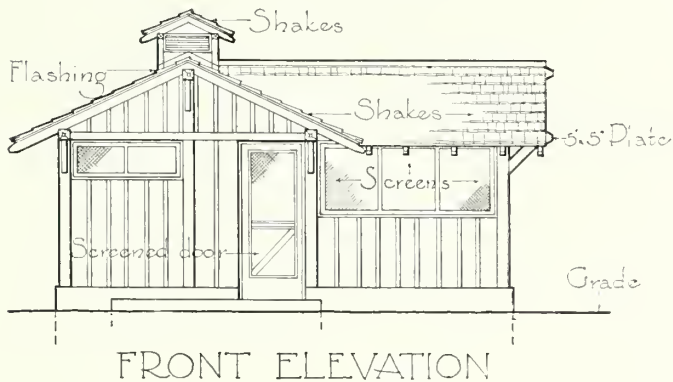
Scale 1/8" = 1'-0"



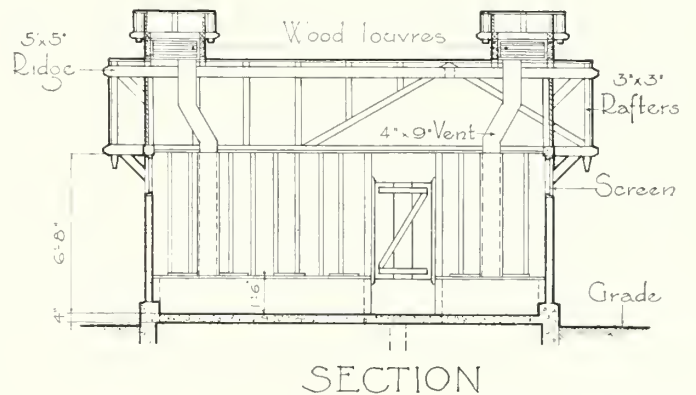
SIDE ELEVATION



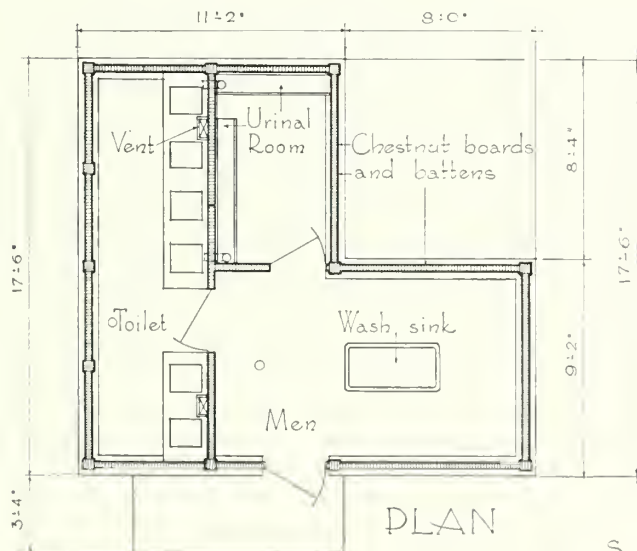
REAR ELEVATION



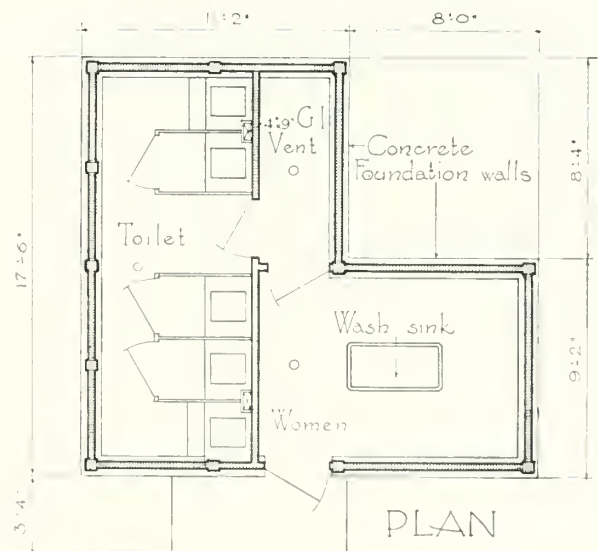
FRONT ELEVATION



SECTION



PLAN



PLAN

Scale 1/8" = 1'-0"

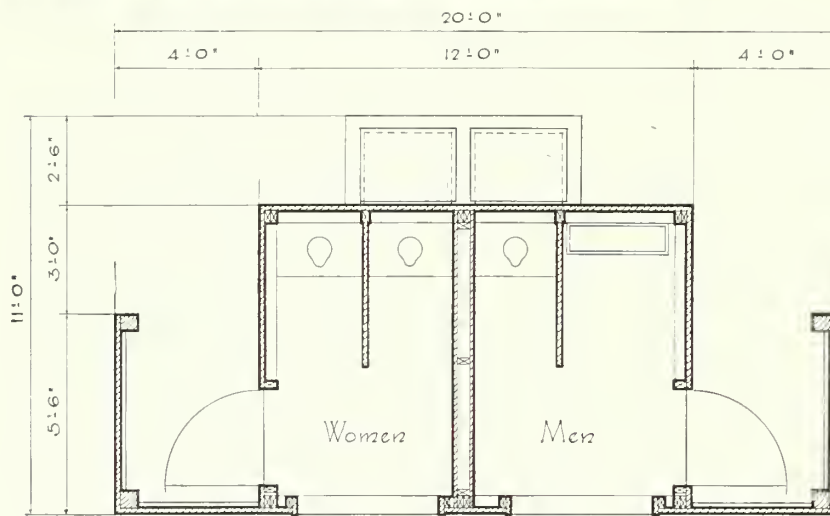


Privy - - Virginia Kendall State Park - - Ohio
 Pit privy, that is well-lighted, well-ventilated, and definitely suited to a woodland setting without straining at too primitive "nativeness". Men's and women's units are closely similar, except as to plan arrangement. The not inconspicuous ventilators jauntily straddling roof-comb may provoke argument.

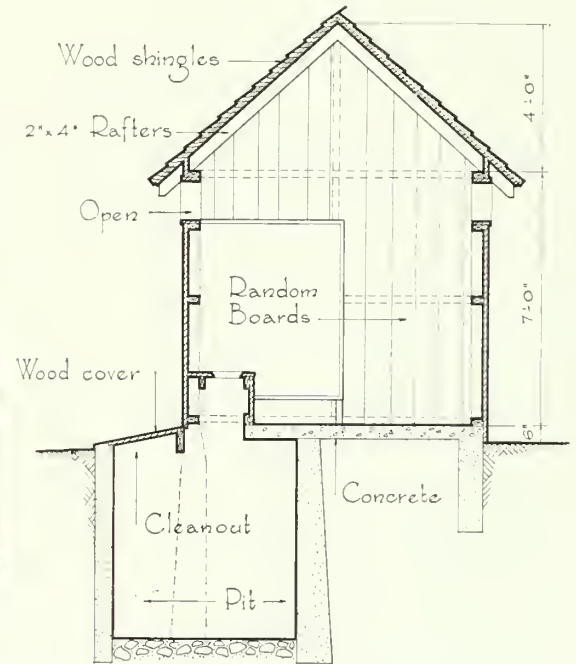


Privy - Mt. Penn Park - Reading, Pennsylvania

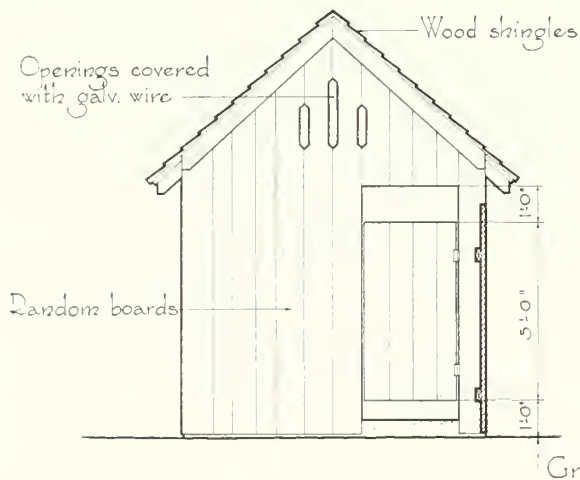
An utterly simple and slighty provision of a basic facility, that can be scrapped without great capital loss whenever flush toilets and lavatories in a more permanent structure are possible on the area.



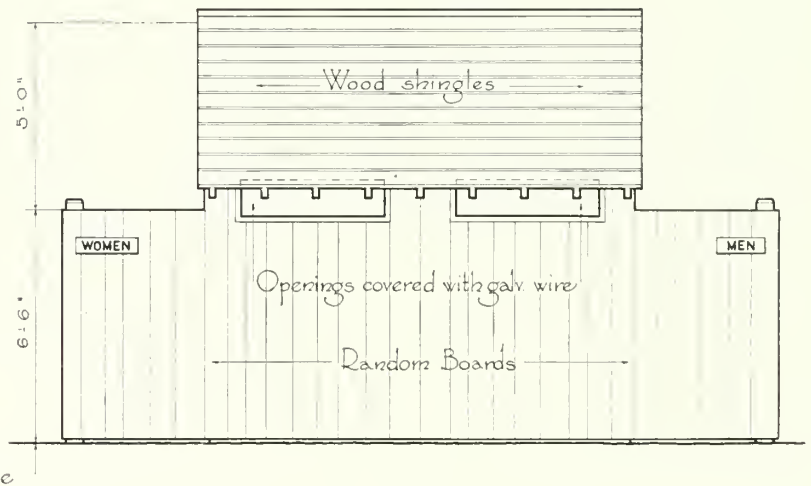
FLOOR PLAN



SECTION



SIDE ELEVATION

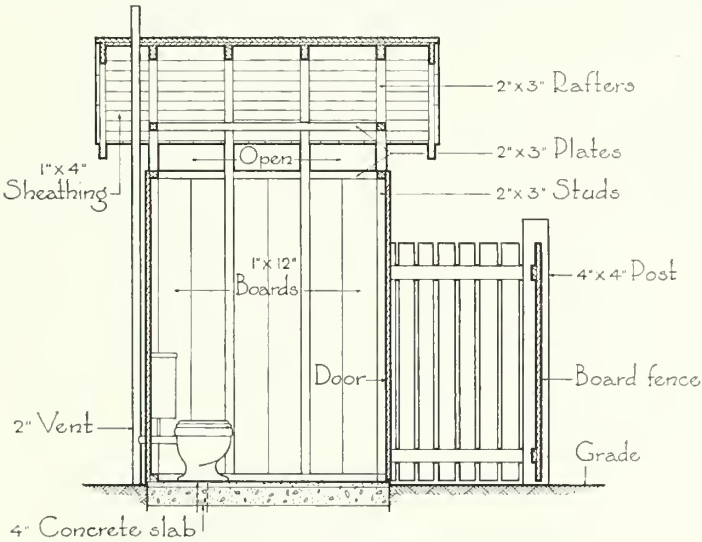


FRONT ELEVATION

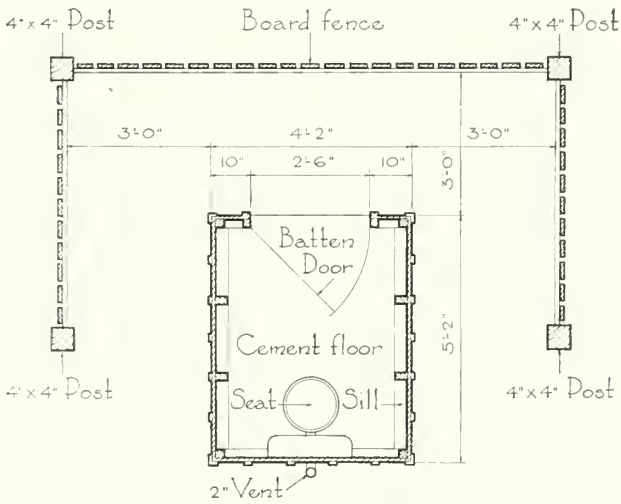
Scale $\frac{3}{16}$ " = 1'-0"

Comfort Station
 Humboldt Redwoods State Park - - - California.

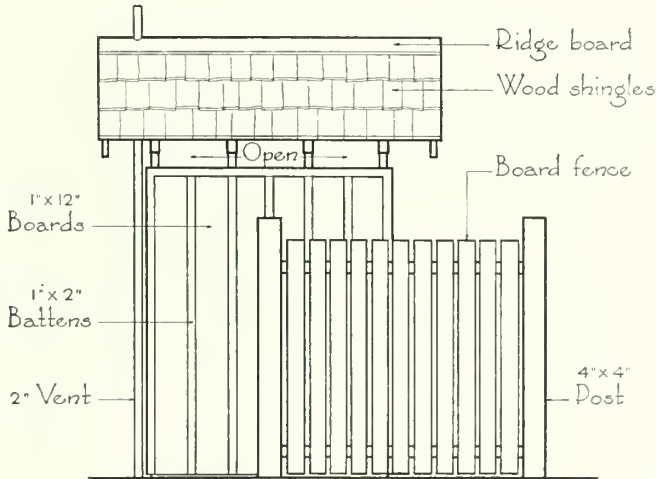
A one-seat comfort station retaining the simple exterior contrived from minimum materials more usual in the privy. Elaboration has made its appearance where it properly should - - the more positive sanitation offered by a flush toilet fixture. The men's and women's toilets are identical spaced about twenty-five feet apart



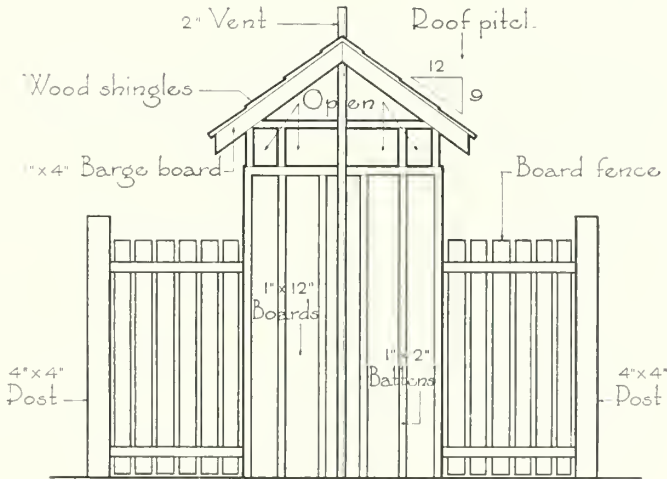
SECTION



PLAN

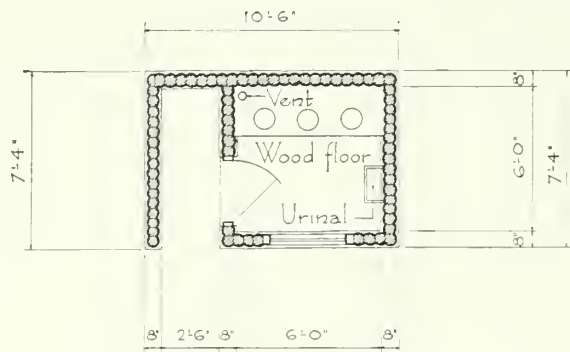


SIDE ELEVATION

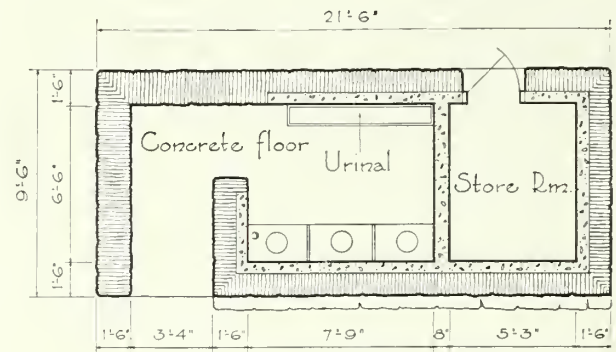


REAR ELEVATION

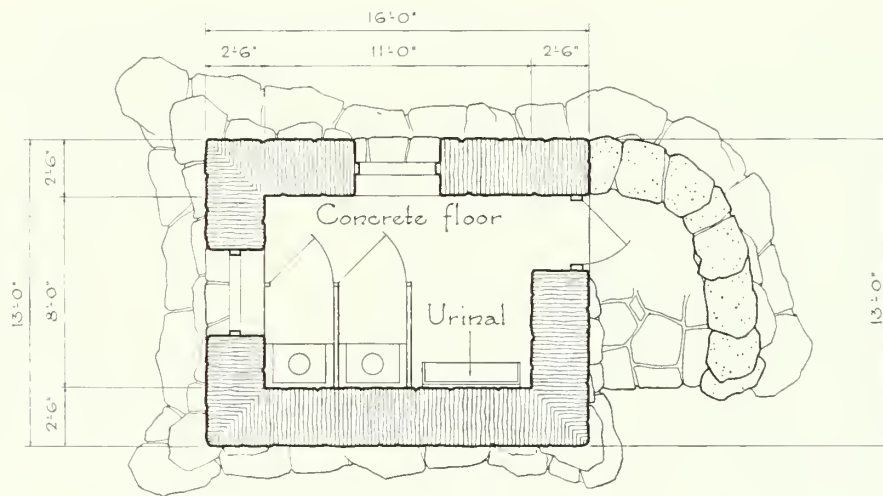
Scale 1/4" = 1'-0"



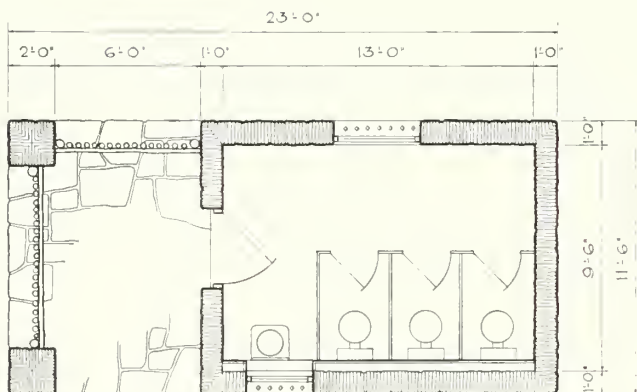
Coos Head Metropolitan Park - Oregon



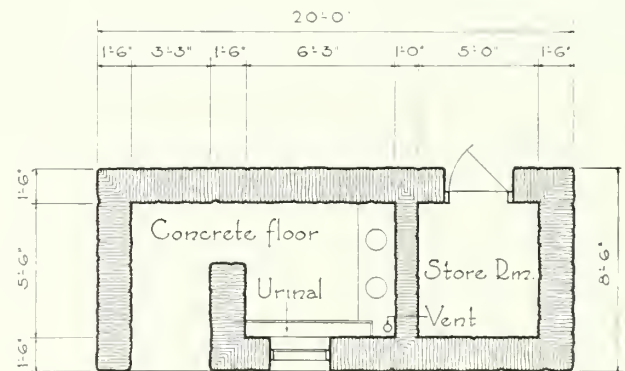
Mohanoic Reservation - Westchester County - New York



Boyle Metropolitan Park - Arkansas



Santa Rosa County Park - California



Wahink Lake State Park - Oregon

Scale $\frac{1}{8}" = 1'-0"$



Coos Head Metropolitan Park, Oregon



Mohansic County Reservation, New York

TOILET STRUCTURES FOR SINGLE SEX

The plans on the facing page indicate the housing of toilet facilities for the sexes in separate buildings, probably less usual than a single building with two well-separated sections. The latter arrangement in general characterizes the toilet buildings shown on the following pages. Fixtures here range from the primitive to the flush type. There is just as wide variation in the construction materials employed and in the degree of rusticity these produce. Three of the structures have open gable ends to provide abundant light and ventilation.



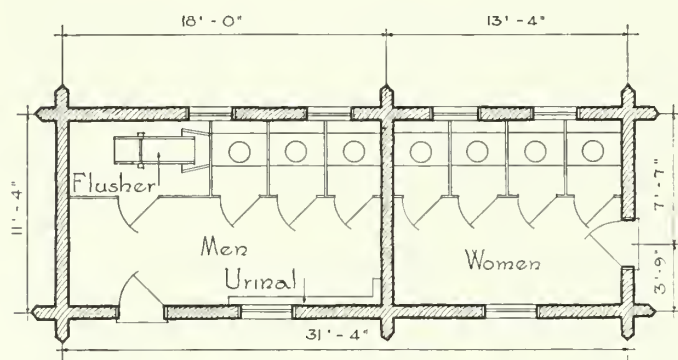
Boyle Metropolitan Park, Little Rock, Arkansas



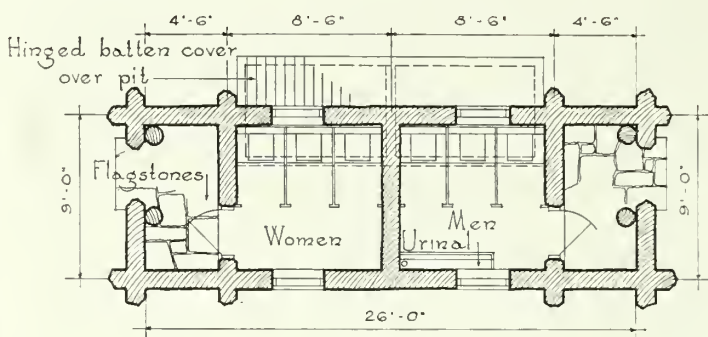
Santa Rosa County Park, California



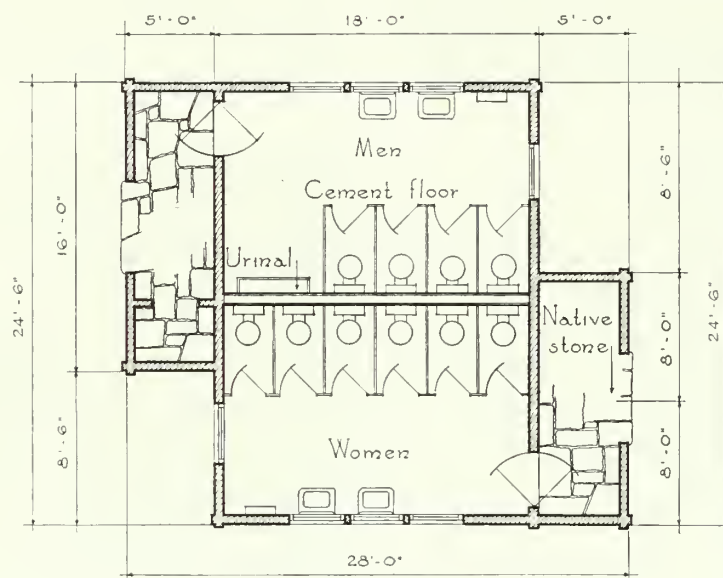
Woahink Lake State Park, Oregon



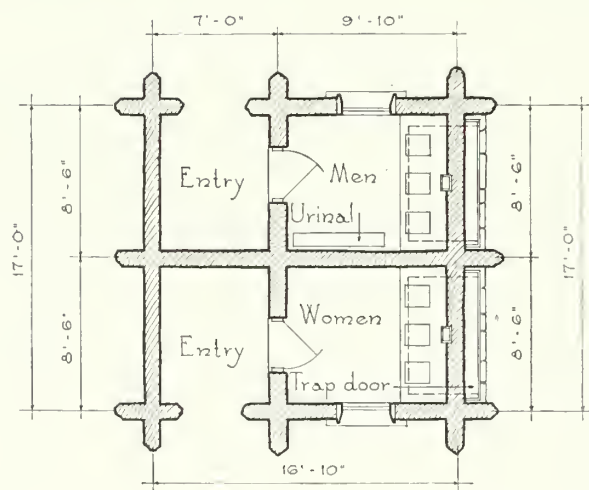
Vogel State Park, Georgia.



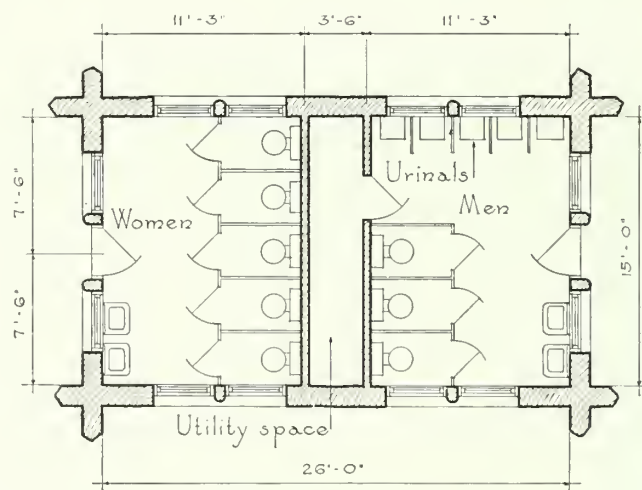
Custer State Park, South Dakota.



Spring Mill State Park, Indiana.



Fargo Metropolitan Park, North Dakota



Yosemite National Park.

Scale $\frac{3}{32}'' = 1' - 0''$



Vogel State Park, Georgia



Custer State Park, South Dakota

LOG TOILET STRUCTURES FOR BOTH SEXES

Common to these toilet buildings, plans of which are shown opposite, is log construction. In quality and in scale the log work is generally excellent. The single example of squared logs is in "Indiana Primitive" in continuation of the traditions of a reconstructed early village in this park. The low lines of the Custer State Park example are especially pleasing. Two typical "back-to-back" plan arrangements are shown. The other three are less usual in lay-out. A partition wall of logs is likely not to prove as positive a separation between sections as is desirable.



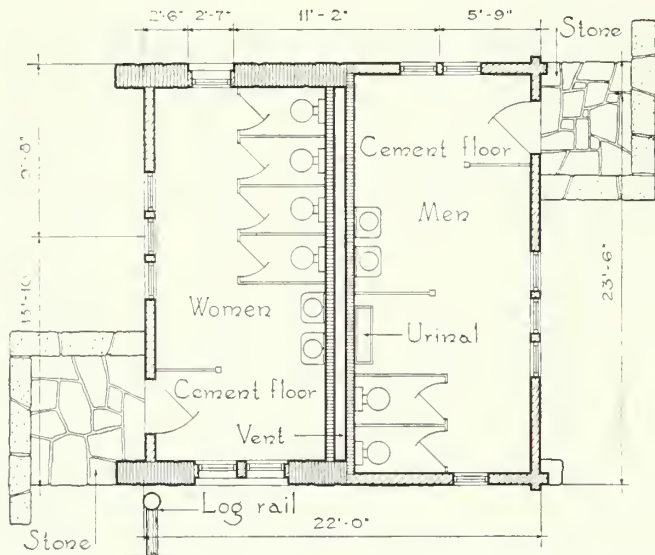
Spring Mill State Park, Indiana



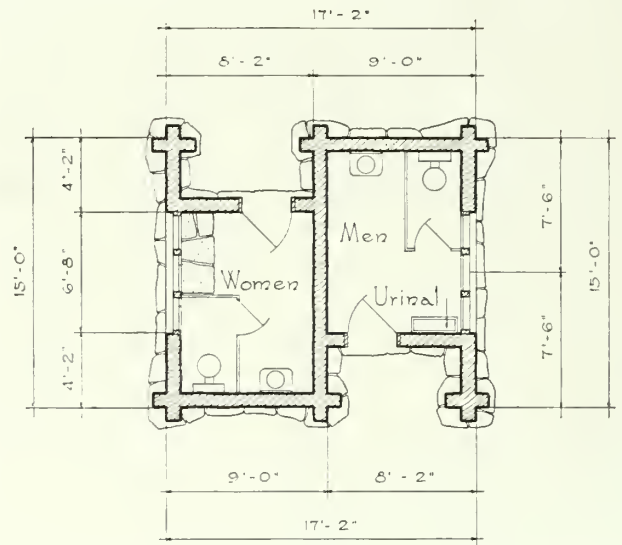
Fargo Metropolitan Park, North Dakota



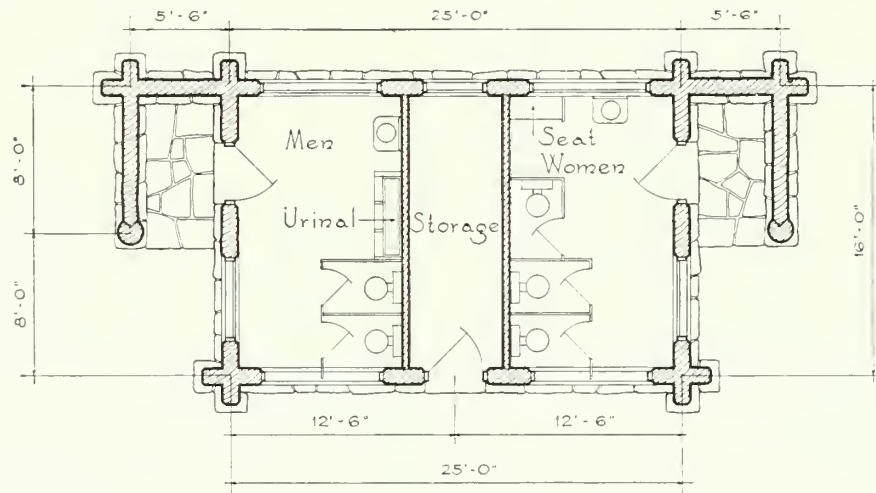
Yosemite National Park



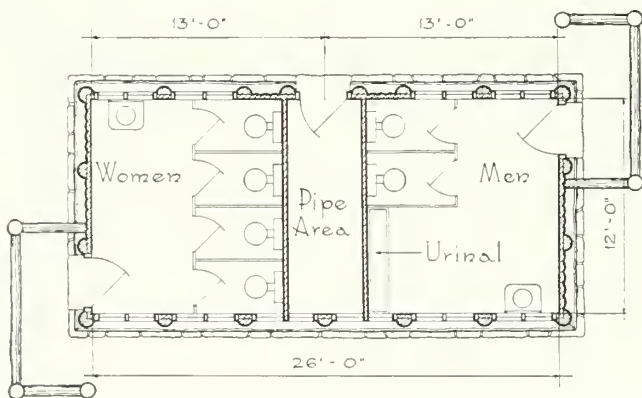
Clifty Falls State Park, Indiana



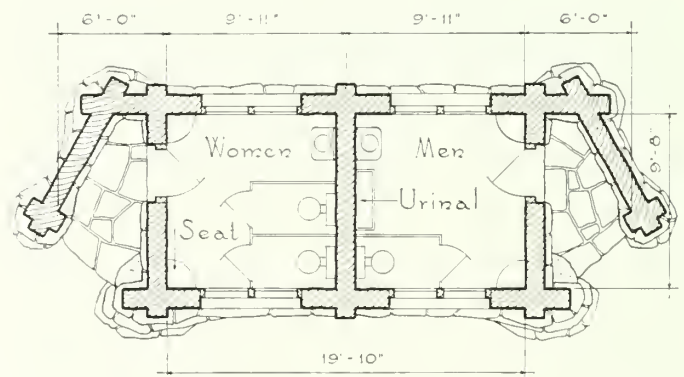
Mohawk Metropolitan Park, Tulsa, Oklahoma



Lewis and Clark State Park, Washington



Mt. Rainier National Park



Mohawk Metropolitan Park, Tulsa, Oklahoma

Scale $\frac{3}{8}$ " = 1'-0"



Clifty Falls State Park, Indiana



Mohawk Metropolitan Park, Tulsa, Oklahoma

LOG AND STONE IN COMBINATION

There is great practicability in toilet structures having stone walls below and log walls above. The stone walls provide both secure anchorage for fixtures and suitable base for impervious surfacing. The log walls lend themselves readily to the extensive louvred or other openings necessary for ample light and ventilation. The buildings at Mohawk Metropolitan Park belong in the very front rank for their rustic park character. Picturesque is the pioneer construction of adzed, squared logs and local stone, adapted to a hillside site at Clifty Falls State Park.



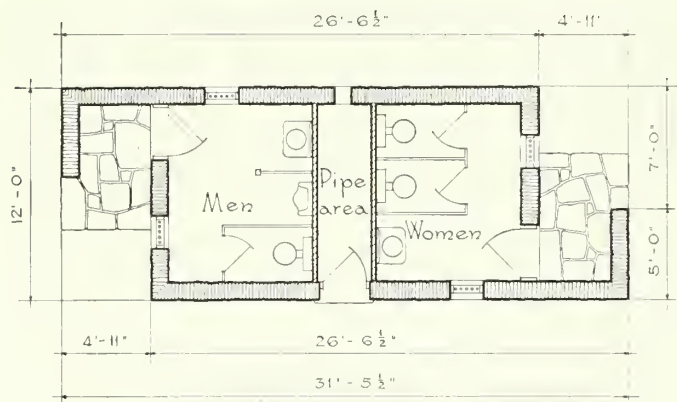
Lewis and Clark State Park, Washington



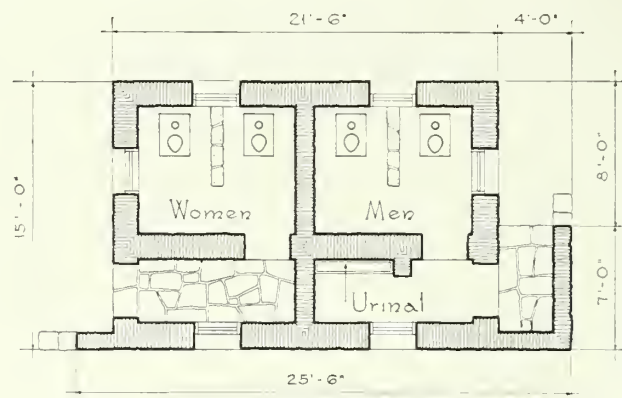
Mount Rainier National Park



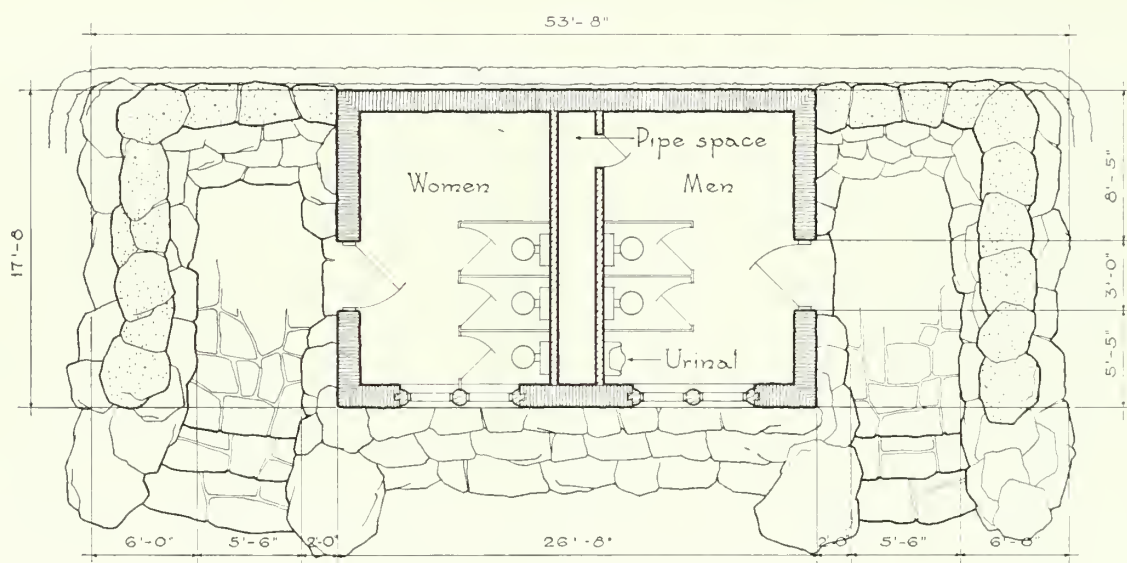
Mohawk Metropolitan Park, Tulsa, Oklahoma



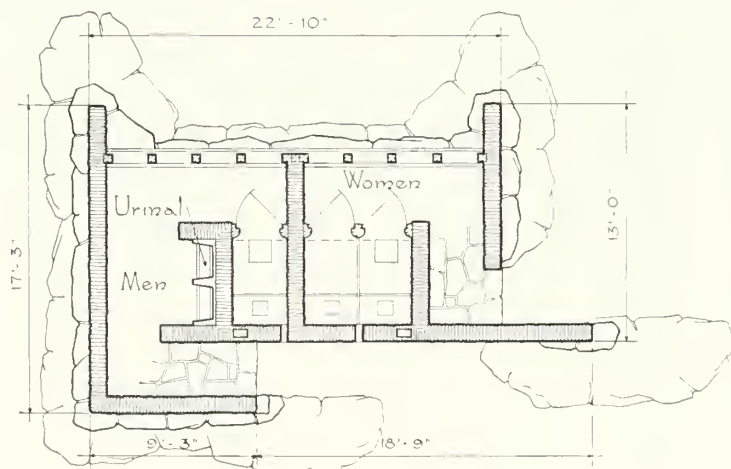
Phoenix South Mountain Metropolitan Park, Arizona



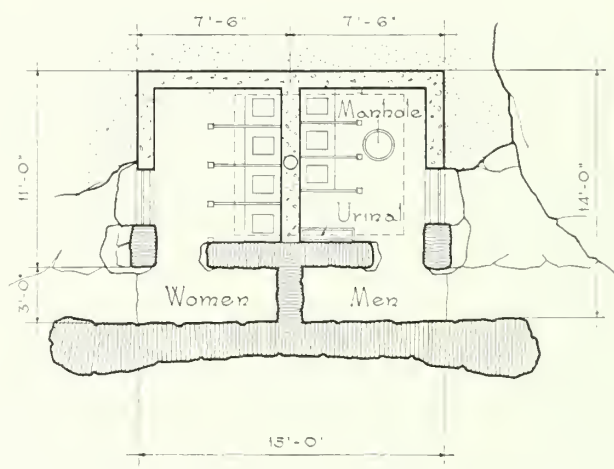
Palo Duro State Park, Texas



Lake Murray State Park, Oklahoma



Perry Lake Metropolitan Park, Oklahoma



Garden of the Gods, Colorado Springs, Colorado

Scale 3/8" = 1'-0"



Phoenix South Mountain Metropolitan Park, Arizona



Palo Duro State Park, Texas

TOILET BUILDINGS IN THE SOUTHWEST

The roof which is flat or very low-pitched is a favored means for insinuating structure into surroundings in the Southwest. So, also, is a well-defined horizontal coursing of the masonry. The treatment of the hillside latrine at Lake Murray amounts almost to camouflage. The burrowing structure in the Garden of the Gods is the all-time high for conversion of a natural site to structural purpose.



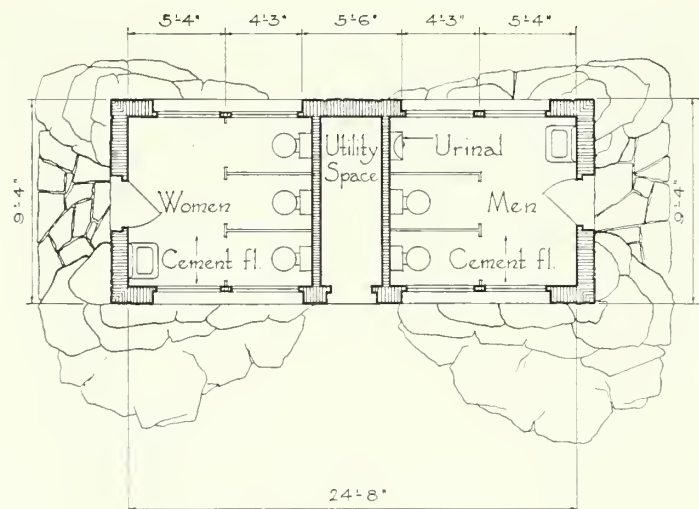
Lake Murray State Park, Oklahoma



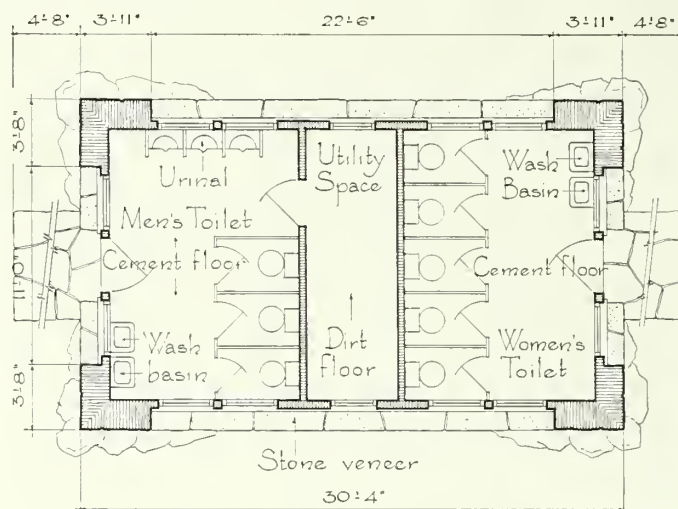
Perry Lake Metropolitan Park, Oklahoma



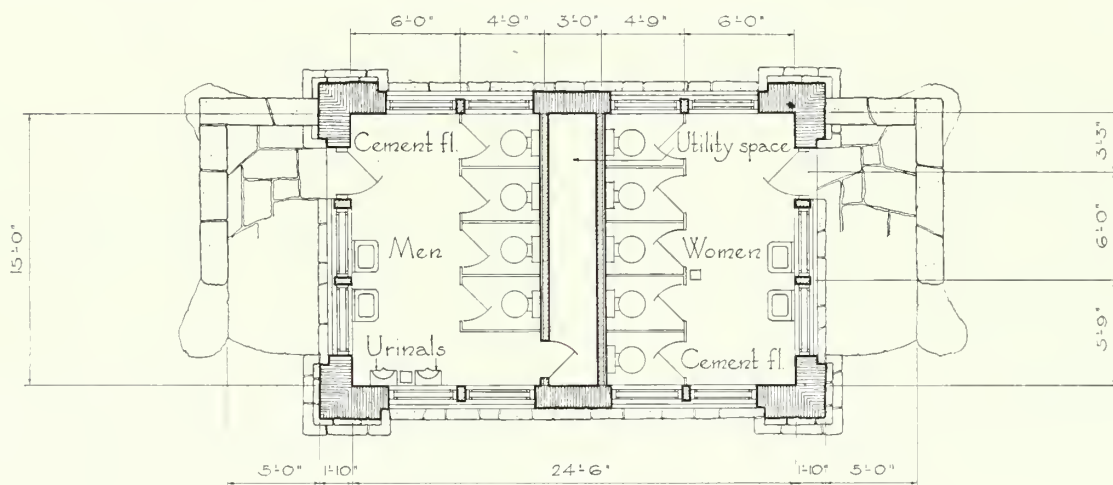
Garden of the Gods, Colorado Springs, Colorado



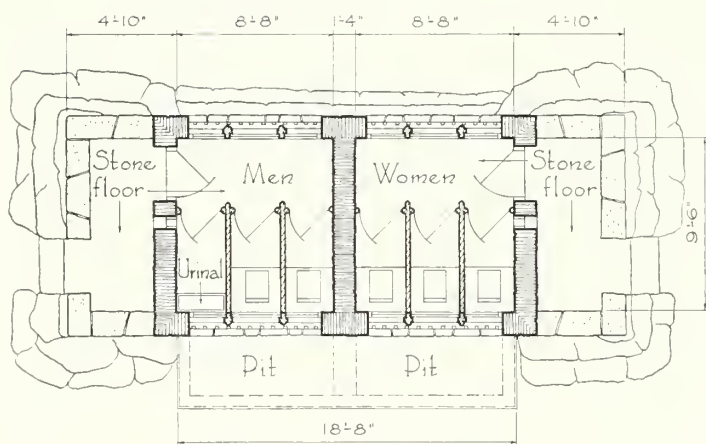
Yosemite National Park



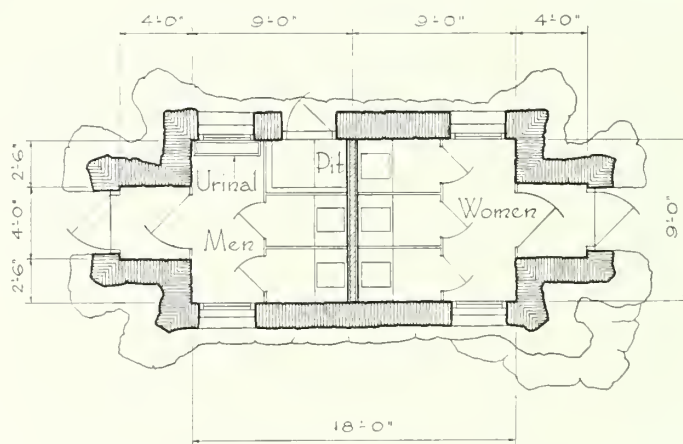
Yosemite National Park



Platt National Park



Lake Guernsey State Park, Wyoming



Saratoga Hot Springs State Park, Wyoming

Scale $\frac{3}{32}$ " = 1'-0"



Yosemite National Park



Yosemite National Park

TOILETS IN FAR WESTERN PARKS

Three structures here shown typify comfort stations in the western national parks. Scale of structure is keyed to a rough terrain. Three illustrated exemplify that treatment of rough rock walls variously described as “battered”, “buttressed”, and “blended to outcrop.” It is not to be denied that there results assimilation into site in a degree not attained by other approaches. A variety of roof surface textures is here presented for comparative study.



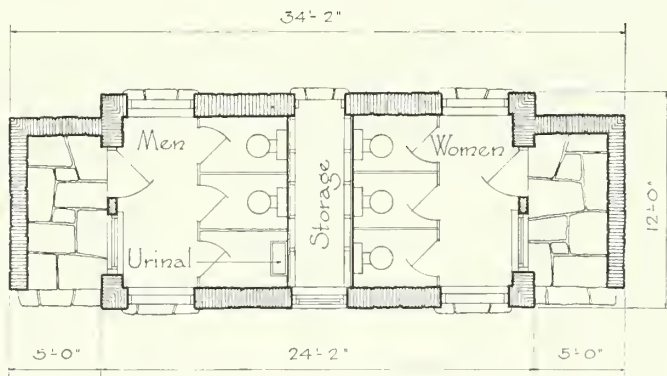
Platt National Park



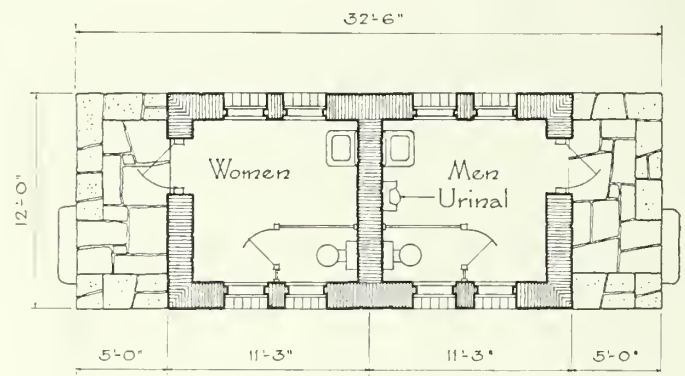
Lake Guernsey State Park, Wyoming



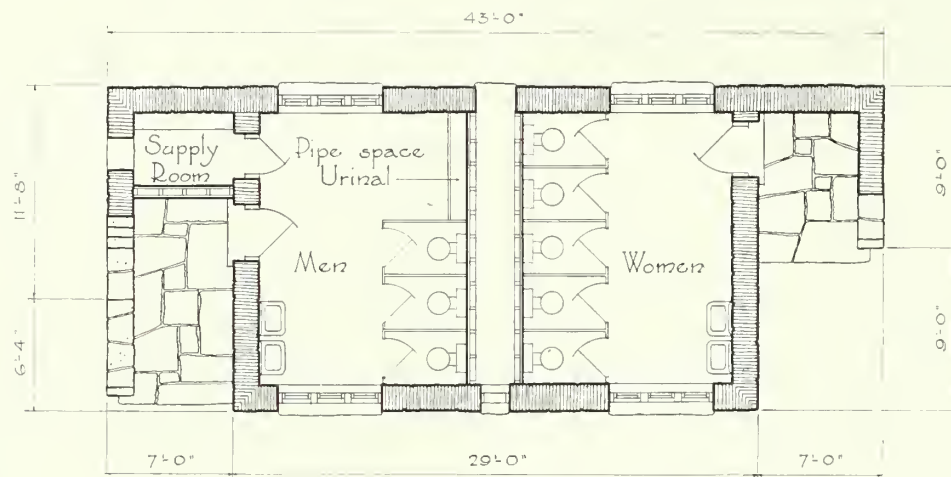
Saratoga Hot Springs State Park, Wyoming



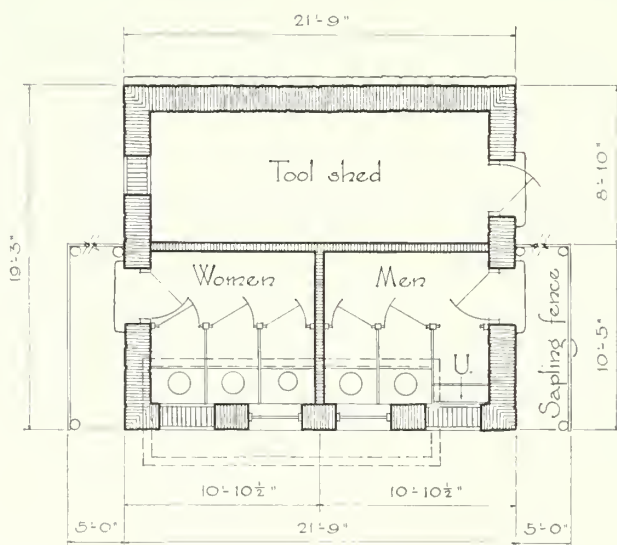
Eldora Pine Creek State Park, Iowa



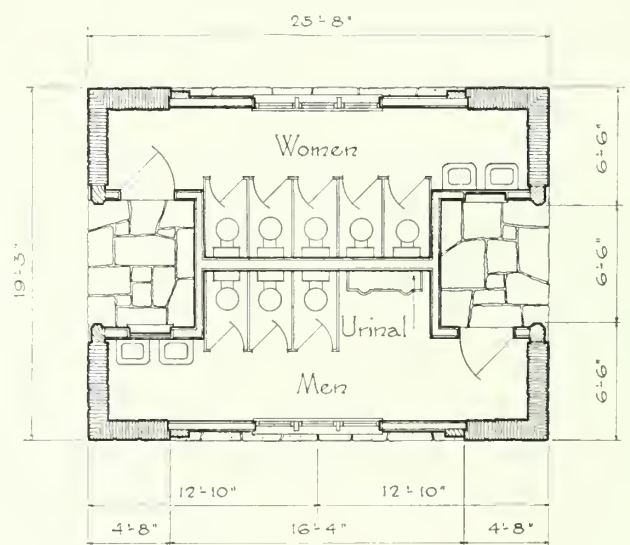
Lampasas State Park, Texas



Fort Ridgely State Park, Minnesota



Saxon Woods, Westchester County, New York



Turkey Run State Park, Indiana

Scale $\frac{3}{8}$ " = 1'-0"



Eldora Pine Creek State Park, Iowa



Lampasas State Park, Texas

MISCELLANY

These examples have in common a certain more finished (in the sense of less rustic) treatment than we have just observed in the handling of masonry. It may be inferred that the surroundings are likewise less rugged, even modified, in character. Whereas all examples suggest the many varieties of masonry possible; and Whereas there are details here present, to wit: shapeless units, directionless coursing, suggestion of concrete block, unbroken vertical joints, stones placed on end (all of which might have been avoided to happier results): Therefore be it *Resolved*, That such shortcomings shall not merit repetition.



Fort Ridgely State Park, Minnesota



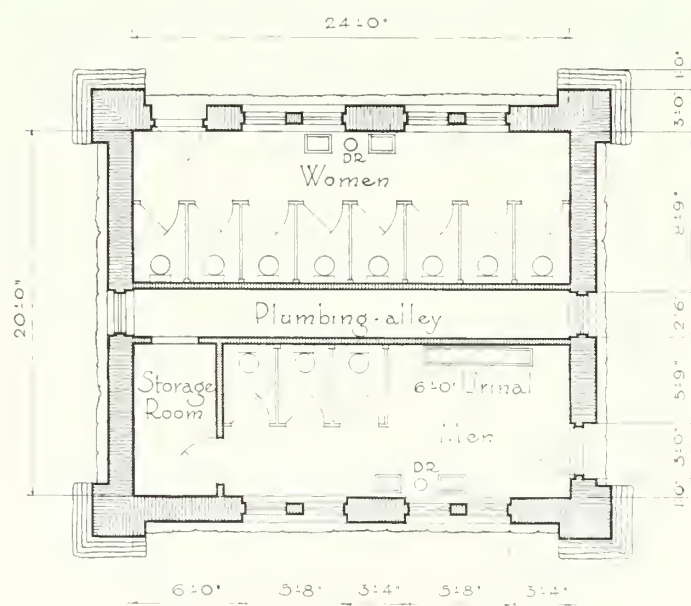
Saxon Woods, Westchester County, New York



Turkey Run State Park, Indiana



Comfort Station, Logan Pass, Glacier National Park



FLOOR PLAN
Scale $\frac{3}{32} = 1:0$

Here is a comfort station of considerable size, the exterior treatment of which is no less than very highly distinguished in its appropriateness to site. The degree of this accomplishment is hardly exceeded by any other subject herein illustrated. The bold masonry of heroic scale, projecting pole beams and rafters, and the skillful blending with the rugged terrain are important contributions to this completely satisfying structure.

INCINERATORS

SAFE DRINKING WATER and sanitary toilets are often cited as the "first things" to be provided in a park for its safe use by the public. Also in this category and hardly of secondary importance is the need for the positive disposal of garbage and rubbish to insure the maintenance of healthful and inviting conditions. As surely as drinking water must be provided and kept uncontaminated and sewage disposal provided and kept uncontaminating, so must garbage and rubbish collection and disposal be positive and complete. The undertaking may not be haphazard. The incinerator is the structural medium, but it is not automatic and depends entirely on the human equation for its effectiveness.

Incinerators provided in the picnic area for operation by the public itself have not proved efficacious, generally speaking. They are most certainly short of positive in disposal of the variety of waste that is the byproduct of picnicking. Picnickers in the mass seem not to be endowed with the knack of operating an incinerator and even their most sincere attempts are not effective in a degree to leave the incinerator a very salutary object in a use area.

A policy that looks to the public to burn its combustible rubbish in picnic fireplaces, deposit its cans and bottles in pits and its garbage in surface containers, assumes public cooperation in a degree that is probably subrealistic. Experienced park men recognize that the missionary work necessary to promote public cooperation in that degree is a formidable undertaking in itself. They willingly take over as operations functions the collection and disposal of refuse beyond that point. Some find the responsibility must be assumed before that point is reached.

Undertaken as a public service operation, the business of collecting garbage and rubbish and of

operating and tending the incinerator must be diligent and routine. The schedule will be determined by the measure of the public's preliminary cooperation, the fluctuating use of the picnic facilities, and the types and capacities of containers, pits, and incinerator.

The incinerator can take one of a number of forms. Important details are the determination of a proper capacity, the employment of heat resisting materials, and, for a maximum combustion, the provision for draining accumulated waste prior to burning. An abundant draft is absolutely essential. Overhead shelter for the attendant operating the incinerator is desirable, because for efficiency in operation more than a casual attendance may be necessary, particularly in heavy, rainy weather.

The method of charging the incinerator is deserving of consideration. When the garbage is delivered in truck load quantities, there is saving of labor in an arrangement that permits it to be dumped or shoveled into the combustion chamber from above.

It is regrettable if the flue must be tall and unsightly, but it is more regrettable if, in attempting to overcome this, the draft is reduced beyond the desirable maximum and unnecessary smoke and stench are the result. Prevailing air currents should be studied before the site is determined. Tree growth and other natural screening from view are advantageous only if in that capacity they do not also become obstructions to draft.

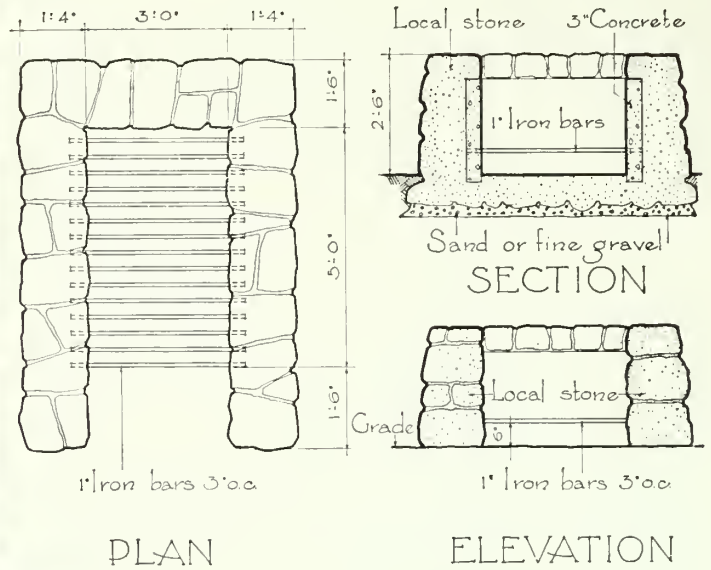
Incinerators should be located conveniently near the intensively used areas, yet must be decently retired so that their nuisance quality is minimized.

It might be said in short that incinerators, like equipment and maintenance buildings, and all such other phases of park operation which by their nature are capable of functioning without direct contact with the public, function best if kept from its sight and from its path.



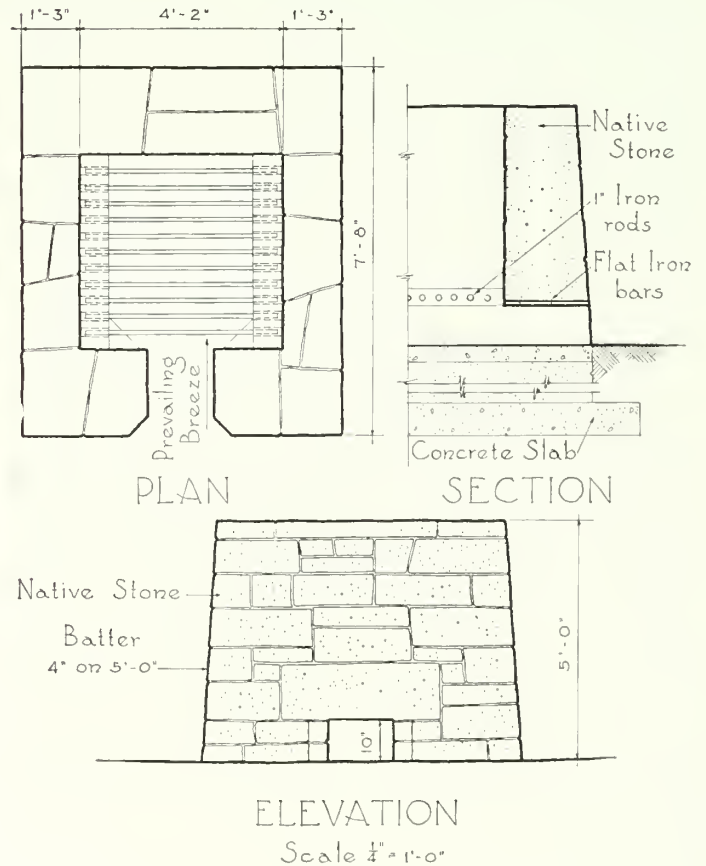
Incinerator, Fargo Metropolitan Park, North Dakota

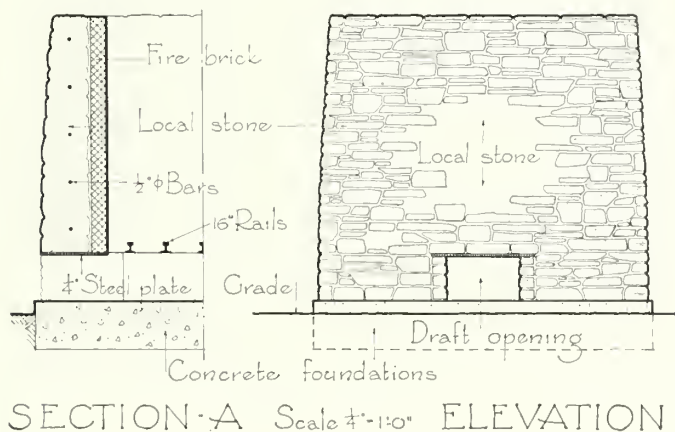
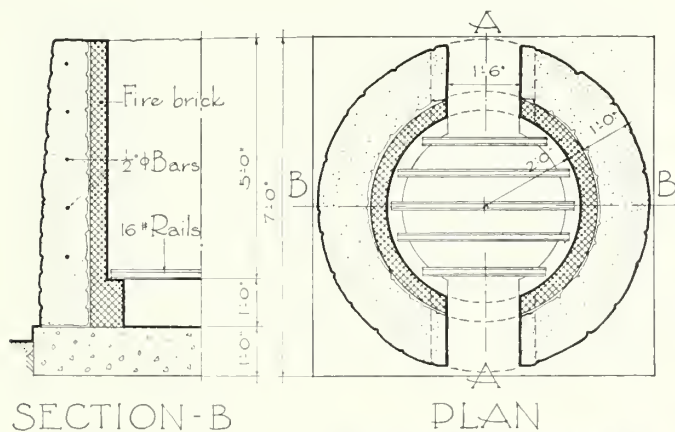
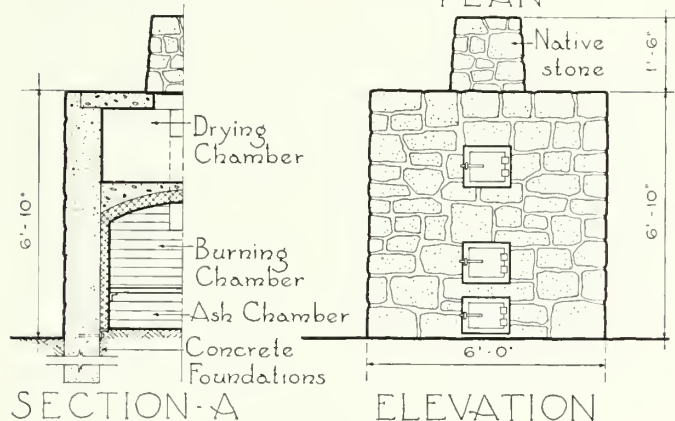
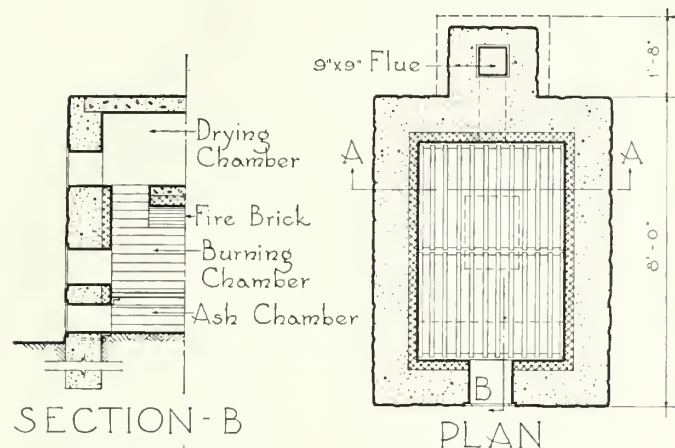
The most elementary form of incinerator is this type. It is merely picnic fireplace of exaggerated size. The examples on this page are more restricted in capacity than those which follow. The open top incinerator is not adapted to regions of heavy rainfall.



Incinerator, Bonham State Park, Texas

An exceedingly simple design in which the drying out of wet refuse before burning is probably accelerated by the open top. The illustration shows a fence of good park character which hides from public view the disposal of rubbish and unsightly service items—supplies, equipment, and the like.





Incinerator, Backbone State Park, Iowa

Although of moderate size for a park incinerator, this one buries from sight some of its bulk by reason of its hillside location. Important aid to complete combustion is the draining and drying of the collected refuse prior to firing, here provided for. The surroundings suggest that draft may be hampered by the woods growth.



Incinerator, Taughannock Falls State Park, New York

The refuse is lowered into this circular incinerator from the level of truck or wagon, approach for which is supplied by the concrete pavement to the left of the unit. This design is not unsightly in appearance and provides large capacity. A well-cleared site insures an adequate draft for this example.



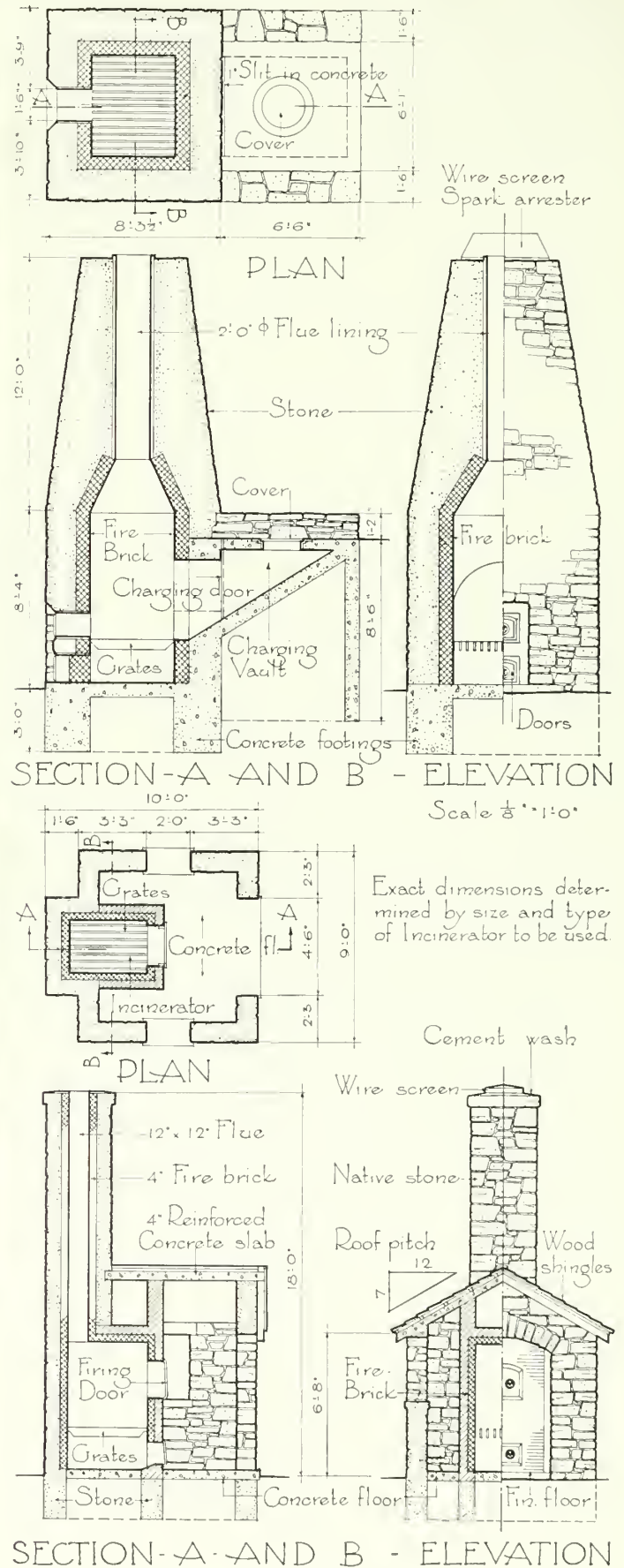
Incinerator, Sharon Woods, Cincinnati, Ohio

Monumental in size, and almost so in its character, is this utilitarian incinerator. It is fed directly from refuse collection trucks which reach the charging door by means of the elevated earth ramp. The capacities of this chimneyed facility and the one below greatly exceed those of the previously shown examples.



Incinerator, Audubon Memorial State Park, Kentucky

The soaring chimney is considerably softened by the roofed structure at its base which houses the incinerator itself and provides shelter for attendant operating it. The charging of the unit is from the front wall, not overhead opening as in the example above. The wire-screen spark arresters that equip both units are important safeguards.



FIRE LOOKOUT STRUCTURES

THE PROMPT DETECTION of any forest fire that may start is a basic necessity for the efficient protection of forested parks. In order to provide for early discovery and immediate report of size, location, and condition of fires before they become large, it is necessary that trained observers be so stationed that they can keep the forest under constant observation. These stations are usually located on heights which overlook the greatest possible expanse of danger area, and particularly on those which cover the most probable points of fire origin.

The need, location, and number of lookouts required for adequate fire detection in a given park are determined after carefully conducted lookout studies, not by arbitrary selection of the highest vantage points. The best single point or combination of points to afford the maximum coverage of fire danger areas is selected. Efficient range of visibility does not exceed 10 to 15 miles, due to haze and other vision-limiting factors; therefore, even though a point may provide views of areas much further removed, this additional coverage cannot be given much weight in determining lookout locations.

In selecting the type of structure best adapted for any particular site several considerations are involved.

Unobstructed visibility in all directions in which a fire may occur is of primary importance. If the site is on flat topography, or a shoulder of ridge or mountain cuts off the view, or trees are nearby, which for aesthetic or other reasons cannot be removed, it is necessary to raise the observatory above the ground. On sites which provide clear visibility of the entire danger area, the structure can be a one- or two-story building.

Adequate, safe, and comfortable living quarters for the observer are another important consideration. For efficient fire detection it is essential that the observer live in his lookout unless precluded by

height of structure. Since fires can and do start at all hours of the day and night, he must be constantly on the alert and in a position to observe them promptly. If the observer lives away from his station, the fire may burn a long time before being discovered. Since most lookout structures are on exposed sites, adequate protection from lightning, wind, storm, and sun must be provided. Where high towers (exceeding 16 feet in height) are necessary for detection, the lookout's living quarters should be close to the base of the tower, so located that all possible detection of the area is provided from that point. Provision should be made for storage of food and other supplies and equipment, and also for water, if no source of supply exists on the site. This storage space for supplies is especially necessary in isolated locations where servicing of lookouts is made at infrequent intervals.

Efficient detection of fires requires the use of delicate and costly equipment including the telephone or radio and fire locating and other instruments. It is vitally necessary that these be protected from exposure by adequate housing.

Since lookouts are located on vantage points selected for their broad coverage of forest, they are also the best points from which the public can view the finest scenic panoramas. A well-designed structure and a properly trained lookout observer can contribute to the enjoyment of the park by the public, and the observer is offered a chance to sell fire protection painlessly to the visitors.

SEVERAL TYPES OF STRUCTURES have been designed for efficient fire protection, including a simple single-room building 14 by 14 feet which combines living quarters and observatory, a two-story building with observatory above and storage space below, a low tower with 14 by 14 feet observatory on top, and finally the higher steel towers, some of which are 65 feet high with smaller enclosures. In

designing the structure it is essential that the observatory provide the maximum of unobstructed visibility, using plate glass and narrow corner posts. Adequate protection against lightning, high winds, and winter storms, and the factor of live load due to a concentration of visitors must be taken into account in designing the lookout.

The safety of the visitors must be considered if it is anticipated that the public will visit the lookout. It is generally desirable to provide a walkway or platform around the observatory to accommodate visitors and to permit the observer to examine the area from outside the observatory. High towers must be provided with railings along the steps, platforms, and landings. Landings are desirable to break a monotonous and strenuous climb to the top of a high tower. Ladders are not satisfactory on towers visited by the public.

Since fire lookouts must be placed on prominent points for efficient fire protection, they are fre-

quently visible for considerable distances. They should, therefore, be designed with thought for their appearance. It is possible by employing native rock or logs in the construction to achieve a certain harmony with the surroundings, especially if, when located on a rocky summit, the structure is blended to it and made to appear to grow out of it. However, where it is not feasible to hide the structure without decreasing the efficiency of the lookout, or there is not opportunity for blending the structure to location, the benefits derived from fire detection and the public's interest in the operation itself as a conservational activity of the park area go far to offset any aesthetic shortcomings of the facility itself.

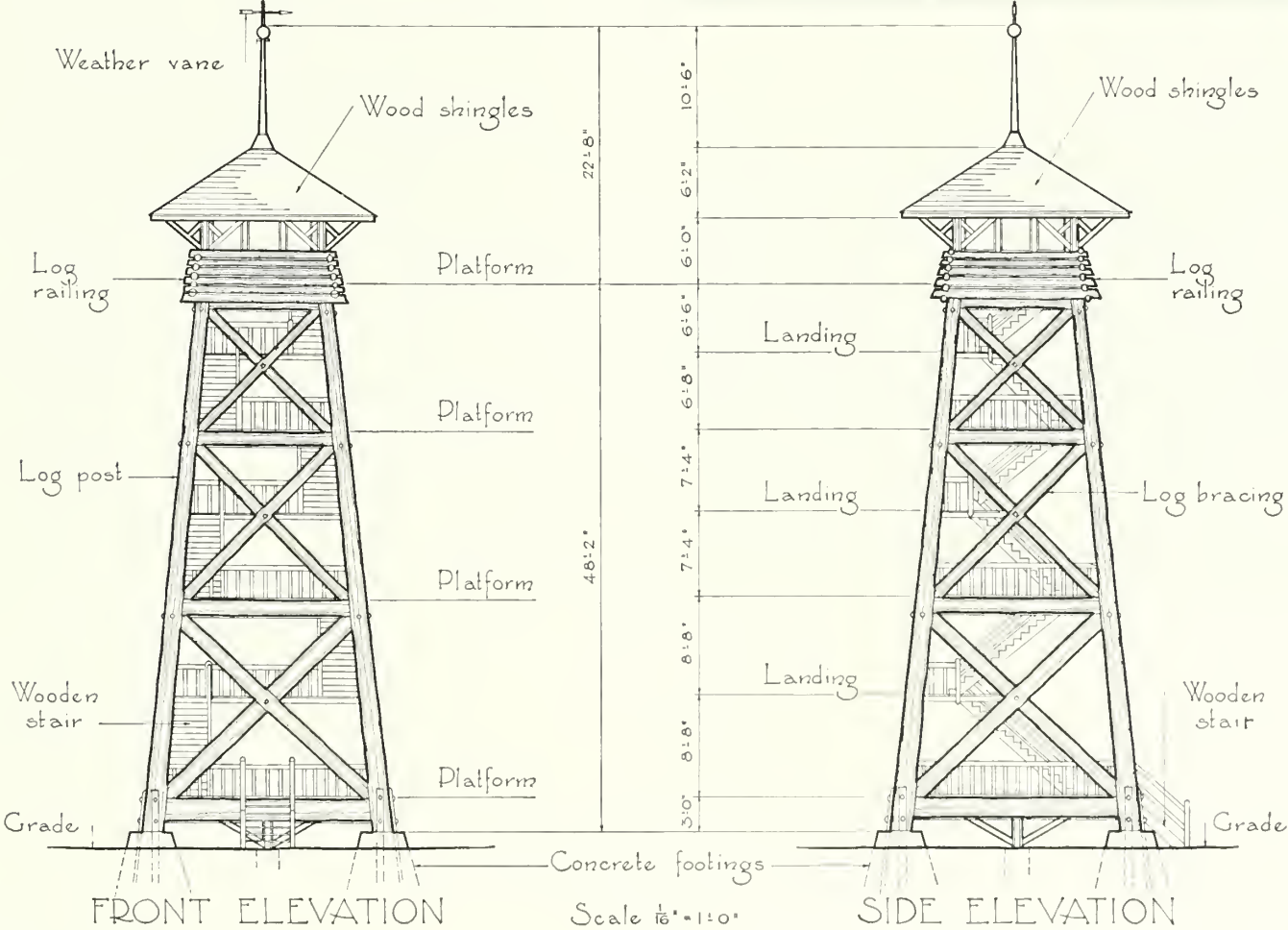
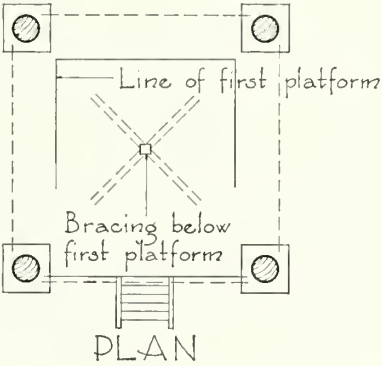
The fire lookout shown directly below exemplifies the functional fire lookout tower, divested of all the gestures to park environment so conspicuous in the timber-framed tower delineated on the following page.



Fire Lookout Tower, Grand Canyon National Park

Lookout Tower - Custer State Park - South Dakota

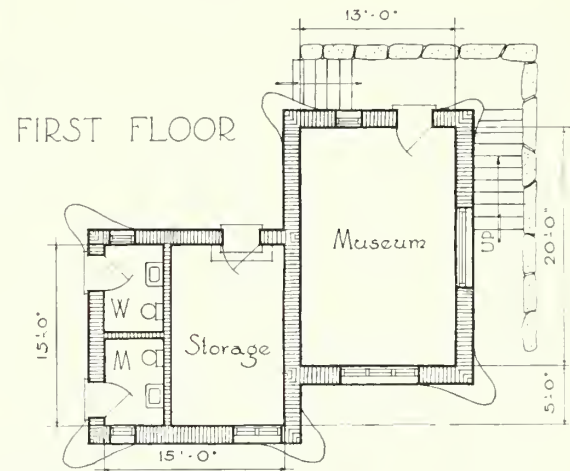
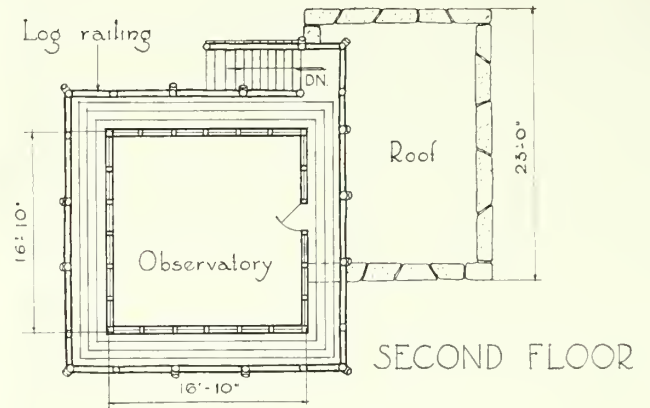
Here is a timber framed lookout tower that includes highly practicable features without the sacrifice of park character, which is peculiarly and agreeably here present. Favoring practical purpose is the wide overhang of roof, for reducing glare, and the white painted cab and soffit of this overhang, for diffusing and reflecting light. Favoring the claim of its location in a park are the log-cabined parapet of the cab, the vigorous scale of the supporting timbers, and the considerable rake of the corner posts so that the tower seems almost to swagger.





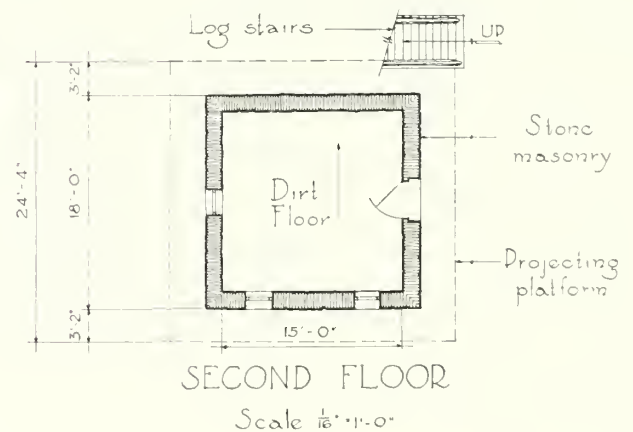
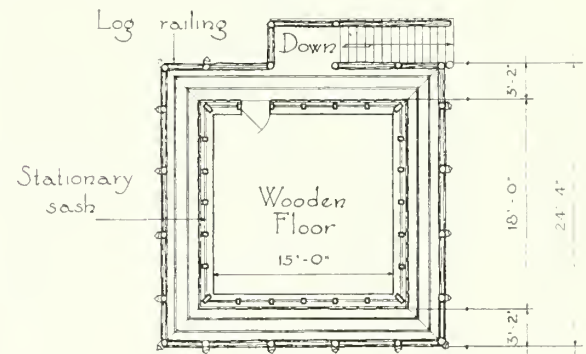
Fire Lookout, Crater Lake National Park

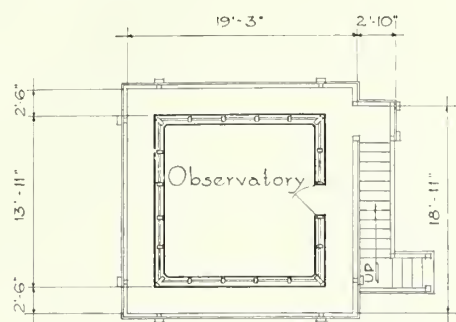
There is novelty in the provision of museum and toilet facilities in the ground floor space of this example. It is probably close to some trail and readily accessible to the public. The recommended maximum of glass and minimum of obstructing posts in the lookout cab are here in evidence. The surrounding balcony is put to practical use by both attendant and visiting public.



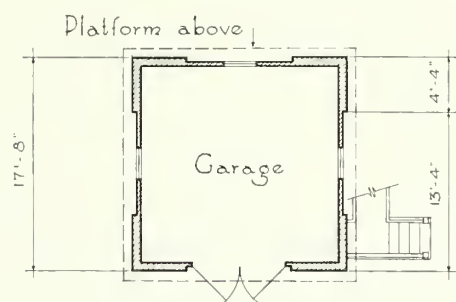
Fire Lookout, Lassen Volcanic National Park

Two-story structure offering minimum obstruction to vision in the details of fenestration of the lookout level. The vigorous proportions in the railing and its bracing are satisfying. The masonry leaves something to be desired. Ventilators, here just beneath the cornice, are necessary in a room so completely enclosed by glass.

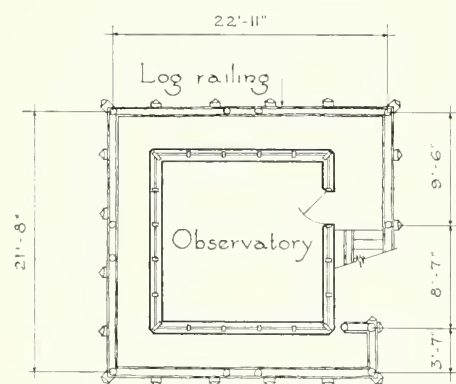




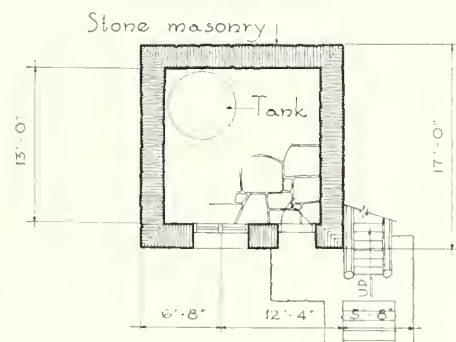
SECOND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Scale $\frac{1}{16}'' = 1'-0''$



Fire Lookout, Crane Flat, Yosemite National Park

Perhaps unusual in its provision of automobile storage space at the ground level, but typical, in its maximum of glazed wall and in the catwalk and overhanging cornice features, of the primary structural needs of the fire lookout facility. The garage as a part of the building indicates a location more readily accessible than is perhaps usual to fire lookouts.



Fire Lookout, Shadow Mountain, Rocky Mountain National Park

More pleasing in its proportions than the foregoing examples and illustrative of the happy results where a masonry structure can appear to grow out of a natural rock outcrop. The technique of the masonry retains characteristics of the rock on the site. The observatory and surrounding balcony are typical.



Fire Lookout, Sugar Loaf, Chiricahua National Monument

Terrain and absence of tall growth here permit the fire lookout observatory to be placed practically at grade level, to results that hardly interrupt the park scene. Topography and other affecting conditions seldom allow this solution to obtain.



Fire Lookout, Paradise, Sequoia National Park

However prominent this lookout may appear, the enormous scale of the rocks on which it is perched must dwarf it to a point where its intrusion is not serious. It rather serves to accent the vastness of scale of the primitive areas into which man has penetrated.



Fire Lookout, Henness Ridge, Yosemite National Park

The fire lookout forced up and up, to three-story structure in this instance, the ultimate, probably, before it must abandon being a building to become a skeleton tower of steel or wood members. The finished character of the details here observable is less appealing in park areas than the more rustic structures already reviewed.

TRAIL STEPS

DESIRABLE AS STEPS ARE at many points in many trails, by no means are they ever to be created for their own sake. It is perhaps not generally sensed that if as much study were given to trail planning as to modern road planning, lesser grades and consequently fewer trail steps would result. In any case, only an unavoidably sharp grade not readily negotiable as such, with no reasonable alternative of an easier grade, will justify resorting to steps at all.

That the first purpose in providing steps along steep trails is to facilitate walking is undeniable. Less obvious perhaps, but not less important, is another consideration. This is the safeguarding of the aspect of naturalness in every detail of the construction of trail steps.

Trail steps, to justify their presence in natural areas, must facilitate walking to just such extent as will not corrupt this natural quality. Conversely, trail steps must strive to emulate Nature only to a degree that will not make them extremely hazardous in use. Either approach should result in approximately the same satisfying compromise. The facilitation of walking along trails in natural areas can hardly lay claim to all the considerations of uniformity of rise and tread, and relationship between these, that may be demanded of steps in almost every other location. It is not unreasonable to assume that the typical park trail is created for the use of hardy hikers entitled to acquaintance with Nature unarrayed with safety treads and handrails.

There are admittedly within most parks limited areas of concentration visited by persons of all ages and of differing capacities for physical activity. Obviously, for steps within such areas, the claim of easy and safe walking should rank in importance above the claim of complete naturalness, and the time-proved principles and practices in satisfaction of the former are applicable at such locations in greater degree. But for the trails into areas of

less intensive use, and with these we are here principally concerned, steps will not demand of the natural setting unreasonable and discordant compromise in adaptation to human use.

In park reservations where there are rock outcroppings, and especially where these are of ledge rock, the very background goes far to contribute naturalness to man-made trail steps. Yet even with the most sympathetic collaboration of Nature, the execution of steps requires considerable skill for wholly satisfying results. The characteristics of the stratifications of ledge rock can often be utilized or reproduced in the creation of steps to such results that they are almost without trace of the artificial. Where rock outcroppings do not exist to provide liaison with the landscape, the naturalizing of rock steps requires a sculptor's skill and sense of form if an anomalous creation is to be avoided. Even here the effort should be to give the constructed steps the appearance of natural ledges. To create such aspect it is most important that the width of treads vary. Rocks forming cheeks at either side of the steps should vary in horizontal alignment, as well as in height, and should be tied and blended into the setting by being occasionally and irregularly extended some distance into the vegetation to either side. No mortar should be evident—greater naturalness will result from dry construction. Width of treads and height of risers will be governed in large measure by the natural slope. Treads should be as wide as possible and risers, except under unusual conditions, should not exceed six inches in height. Rock ledges may naturally exist in the trail where the grade is not so steep as actually to require step forms, yet because the rock is present, steps with risers lower and treads deeper than usual become a logical treatment.

For trails where rock is not an indicated characteristic of the environment, and where the attempt to naturalize it will evidence much of struggle, the steep grades of trails can be made more

negotiable by forming risers of timbers, and providing treads by filling in with gravel or earth. There are various techniques in the fashioning of the timbers, and in methods of anchorage, which achieve different degrees of practical and artistic attainment, as some illustrations suggest. Trail steps of this construction cannot be termed naturalistic with accuracy, but it should be possible to claim them harmonious with environment and not hazardous in use. As with all use of logs in park construction, the timber risers should be stripped of bark, not only because this will in time naturally occur, but because in the certain process of loosening, bark will constantly be a source both of hazard and of litter. Sometimes timber risers are roughly squared or carefully hand-hewn. Such, while not "going native" to the extent of timbers left in the round, probably boast a higher safety rating in the sprain and fracture statistics. Timber risers should be staked in place to insure against loosening and shift in position. Exposed stakes should be driven well below the tread surfaces so there is no projection in which a heel might catch. Better

still are methods that admit of anchorage by invisible stakes.

There are numerous examples of unusual methods or solutions in provision of trail steps. Often the abruptness of grade makes necessary a veritable stairway steeper than the easy rise and tread we know to be ideal. On occasion a ladder must be built when the grade is precipitous. In a land of giant trees, one that has fallen across a gorge or ravine will provide a picturesque foot bridge which, when out of level beyond a certain degree, can be notched to form steps and equipped with rustic handrail.

A handrail is often a necessary safeguard in connection with trail steps narrowly confined between a rising cliff on the one hand and a precipitous drop on the other. It is vital that a handrail be thoroughly substantial in character and in fact, inviting as it does the reliance of adventurous recreation seekers. Better no handrail in any location than one that cannot be trusted both in use and abuse. Far too many structurally adequate and safe handrails are an offense by reason of flimsy appearance.



Palmetto State Park, Texas



Cascades State Park, Minnesota



Mount Penn Metropolitan Reservation, Reading, Pennsylvania

TRAIL STEPS OF LOGS

Here grouped for comparative study are shown logs in provision of steps in trails. The practical and aesthetic values of logs in the round and of squared timbers, and the several methods employed in contriving them to this purpose, are here on parade. The combination of log risers and stone paved treads at lower right is unusual. The litter that results when bark is not removed from the logs used in building trail steps is noticeable in the illustration at lower left. The construction method in this example is none the less interesting.



Letchworth State Park, New York



Spring Mill State Park, Indiana



Alleghany State Park, New York



Bronx River Parkway, New York



Bronx River Parkway, New York



Petit Jean State Park, Arkansas

TRAIL STEPS OF STONE

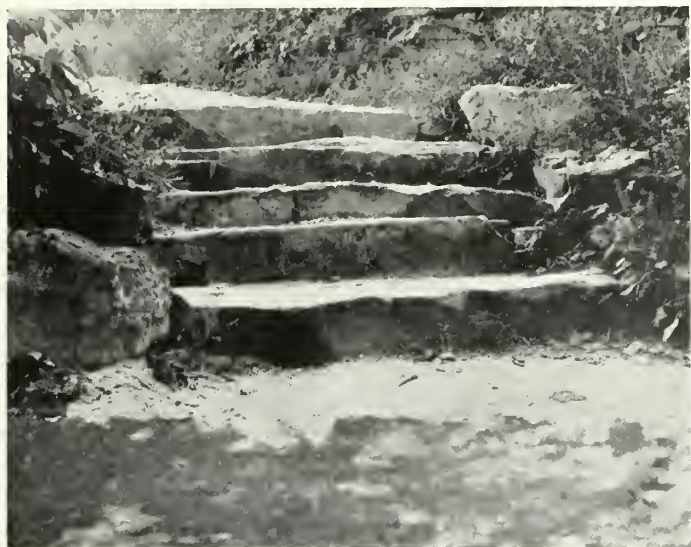
The illustrations surrounding this caption show rocks employed with temperate informality for grade negotiation of foot trails. All suggest that the objective was hardly concealment of their man-made origin but rather uneffusive gesture toward natural surroundings. Present in some examples is appropriate blending to the characteristics of the adjacent terrain. In others, notably toward the upper left, is there hint of the informal garden, rarely and only justified in parks if the immediate surroundings have undergone very considerable modification of original character. In



Mammoth Cave National Park



Perry Lake Metropolitan Park, Oklahoma



Mammoth Cave National Park



Cascades State Park, Minnesota

the illustrations shown at upper right and immediately below there is uncompromising and disturbing rigidity of line which breeds a conclusion that here the full potentialities of site were not realized.

Honesty requires the admission that the steps in the illustration at lower right are not actually trail steps, nor is all the surrounding rock work a natural formation. The steps lead to an overlook atop a cairnlike water storage tank, shown elsewhere in this volume. The accomplishment as to the steps is deserving of the "close-up" that is here given them.



Apollinaris Springs, Yellowstone National Park



Wheeler Dam Reservation, Tennessee Valley Authority



Lake Murray State Park, Oklahoma



Pueblo Mountain Metropolitan Park, Colorado



Wintersmith Municipal Park, Oklahoma



Pueblo Mountain Metropolitan Park, Colorado

TRAIL STEPS OF STONE

“Trail step sculpturing” is a phrase that might aptly be applied to most of the examples here illustrated; certainly it describes the two examples in Wintersmith Park. There is commendable blending to the flanking slopes at Pueblo Mountain Park. Some subjects below do not “read” clearly—the trail steps are discovered with difficulty. If due to bad photography, our regrets; if the result of good trail building, kudos for the rock sculptor!

Most surrounding subjects succeed in reflecting Nature in greater degree than the examples shown on the preceding pages, probably indicating



Interstate State Park, Wisconsin



Lake Guernsey State Park, Wyoming



Wintersmith Municipal Park, Oklahoma



Dolliver Memorial State Park, Iowa

less heavily trafficked areas as the setting for the steps here shown. The illustration at lower right is noteworthy because the man-contrived steps skillfully imitate the rounded, weathered outcropping rocks that frame them.

Examples on the following page depart from the imitation of Nature in the direction of more frankly man-made steps. Steeper grades and heavier use constitute the problem there encountered. More uniform steps geared to time-proved relationships of rise to tread are the solution very properly adopted, and are certainly neither unpleasantly conventional nor too mathematically exact.



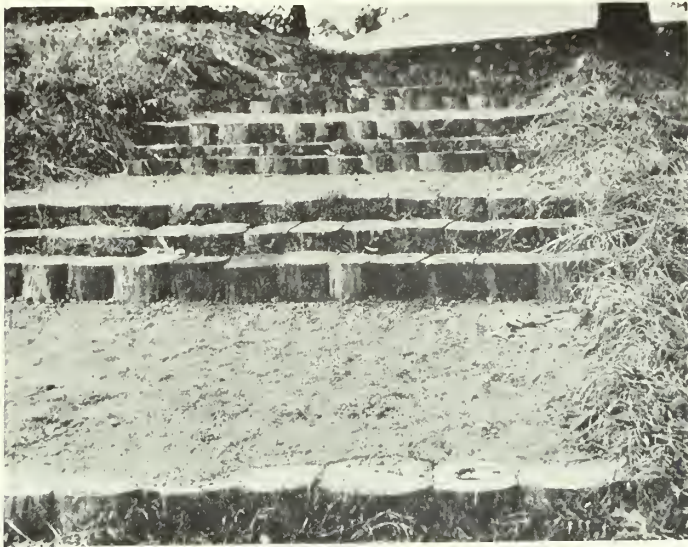
Petit Jean State Park, Arkansas



Mesa Verde National Park



Quartz Mountain State Park, Oklahoma



Crowley's Ridge State Park, Arkansas



Turner Falls State Park, Oklahoma



Wheeler Dam Reservation, Tennessee Valley Authority



Crater Lake National Park



Taughannock Falls State Park, New York



Palo Duro State Park, Texas

CROSSINGS AND CULVERTS

»» **C**LOSE COUPLING of these facilities is premised on a conception that the function of the culvert is to permit a trail or roadway to pass over a drainage obstacle, while the function of the crossing is to permit the drainage to pass over a trail or roadway. Paradoxically, their very difference thus closely relates them.

If in our approach to a park technique the primitive has the right of way, stepping stones for pedestrians and the ford have place as picturesque survivals. For horse trails and secondary motor roads in parks where traffic is leisurely and light, the ford is a legitimate and economical provision for crossing a shallow stream. This is subject to further reservations if tolerance of its quaintness is not to give way to annoyance on the part of the public. The low water crossing will not meet with favor if it is frequently impassable due to flood. Equally intolerable are a soft stream bed, treacherous holes, or other hazards to safe negotiation. The approaches must not incline too sharply, nor may sight lines, as the ford is approached, be obscured by planting. Lack of these requisites to public acceptance of the ford is apt to provoke clamor of disapproval and lead to demand for its replacement with a culvert or bridge, to the eventual voiding of the economy it was sought to effect.

In a sense the crossing is the bridge in embryo, the culvert, the boy that is father to the bridge. We are never unconscious of the presence of a bridge, however well it may be insinuated into environment. In its most minor expression it cannot possibly be truly inconspicuous. A culvert, on the contrary, being in reality merely a retaining wall pierced by a drain, can often be so treated that the casual passerby is unaware of its presence in a natural area. If culvert and fill are extended far enough to either side of the roadway, roadside planting may be extended across the culvert with-

out interruption, and head walls may be omitted above grade. Planting will limit the width of traveled way with more naturalism and finesse than can possibly be achieved by obtrusive head walls. The latter close to the traveled roadway are at once alien and artificial and a traffic hazard.

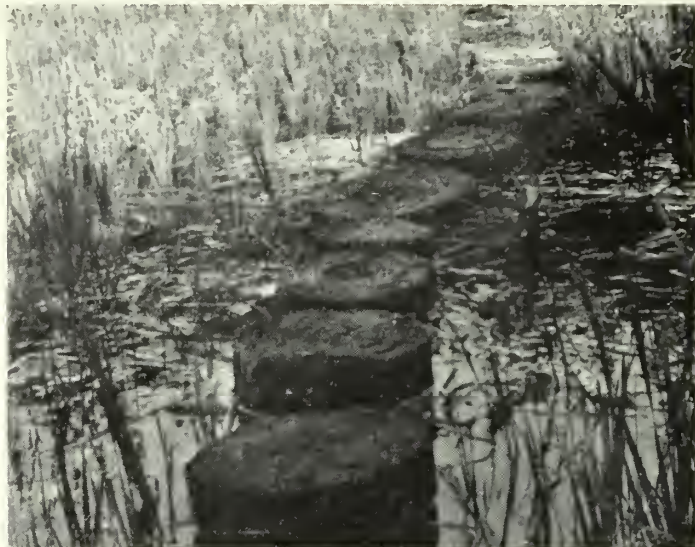
If this procedure for subordinating culverts to surroundings is impractical or uneconomical by reason of terrain, head wall barriers then become a very necessary safeguard. Worthy of study is the character given the required barrier. Its artificiality can be held to a minimum. Like many another facility in natural parks, it should be first and always informal in treatment and blended to its surroundings. Materials and workmanship should be such that facing and culvert itself, once constructed, make no demands whatever upon maintenance appropriations.

The culvert proper is sometimes of local stone when this is abundant and workable, but if it must be of concrete or of galvanized iron, reasonable concealment of the fact is to be striven for. The head wall, by extending well into the culvert opening, should avoid disclosing that it is a mere veneer. Natural rock is certainly the preferred material for the head wall, laid either dry or in mortar. The former method to be lasting must employ stones of suitably large size. If stone is not available, concrete or wood may be resorted to for the retaining wall. In a park sense, neither is a very satisfactory substitute for the stone wall.

Quite as much care should be given to the design and execution of culvert head walls as other park structures. Usual mistakes are insufficient care in the handling of mortar, resulting in sloppy joints, stone of trivial size, and lack of variety in sizes, leading to monotony and formality of surface pattern. These faults are common to much contemporary stone work, not limited to park construction only.



Platt National Park



Ludington State Park, Michigan



Loveland Mountain Metropolitan Park, Colorado

CROSSINGS AND CULVERT TREATMENTS

The crossings illustrated above give indication of the possibilities for picturesqueness in such a facility. Of particular interest is the crossing of stepping stones meeting the well-executed flight of trail steps on the brook bank in Platt National Park. The marsh crossing provided by wood piling at Ludington State Park is novel.

A casual, natural appearance is rather general in the culvert treatments shown on these facing pages. In several the presence of this not easily attained quality is marked. In fact, these culvert



Bronx River Parkway, New York



Boyle Metropolitan Park, Little Rock, Arkansas



Hereford State Park, Texas



Lake Murray State Park, Oklahoma

treatments scarcely classify or are recognizable as culvert head walls except in two illustrations at lower right. It should be realized that it has been necessary to include in this collection many culvert head walls almost at the moment of their structural completion, and that these stand to benefit greatly from the toning influence of a return of natural vegetative growth. In presenting some in their new-born nakedness there is at least the compensatory advantage of disclosing their structure in maximum.



Loveland Mountain Metropolitan Park, Colorado



Spavinaw Hills State Park, Oklahoma



Roman Nose State Park, Oklahoma



Spavinaw Hills State Park, Oklahoma



Robbers Cave State Park, Oklahoma



Arbuckle Trail, Oklahoma

CULVERT HEAD WALL INTO CULVERT-BRIDGE

The masonry head wall of the minor culvert usually employs the lintel to bridge the span. It will be seen that the lintel is sometimes assisted by corbeling, as in the example from the Arbuckle Trail, or by a suggestion of relieving arch, as at Vogel State Park, before the segmental arch in the example from the Blue Ridge Parkway appears. Here revived in miniature are the architectural milestones between the stone age and Imperial Rome. The bottom row of illustrations indicates a



Beavers Bend State Park, Oklahoma



Arbuckle Trail, Oklahoma



Lake Corpus Christi State Park, Texas



Wyandotte County Park, Kansas

solution where heavy flow of surface water will overtax a single culvert.

At upper right is more than culvert, less than bridge—probably culvert-bridge is a fitting term for it. On the following page will be seen more of these, ranging from a finished character to rocky treatments suitable to mountainous terrain. In a majority the arch appears in full development, and the blending of head wall to site is generally very skillfully executed.



Vogel State Park, Georgia



Lake Worth Metropolitan Park, Fort Worth, Texas



Blue Ridge Parkway, North Carolina



Mount Vernon Memorial Highway



Hillcrest Park, Durango, Colorado



Longhorn Cavern State Park, Texas



Wyandotte County Park, Kansas



Lake Murray State Park, Oklahoma



Lake Murray State Park, Oklahoma

BRIDGES

»» **B**RIDGES IN PARKS include foot trail, bridle trail, and vehicle bridges. There should be proved necessity for every bridge before it is undertaken to build it. This refers chiefly to foot trail and bridle trail bridges. Many such trails, certainly those crossing a dry ravine or gully at remote distances from intensive use areas, can make the dip rather than be kept to a constant grade by a bridge. The location of the trail with respect to intensive use areas and the extent of the drainage obstacle are determining factors in the justification of bridges.

This presentation seeks merely to focus on the characteristics that bring to park bridges of varying widths, spans, heights, and types of construction the most promise of compatibility with natural environment. There is elsewhere abundant information, including diagrams, rules, and formulae, for the design of structurally enduring bridges. Much more limited is the presentation of source material concerning itself with bridges which, by reason of appropriateness to natural environment, truly deserve to endure. There are far too many bridges which, after having broken every commandment for beauty and fitness, seem to have sought to wash away all sins through the awful virtue of permanence. Such penitent bridges surely have no place in our parks. The quality of permanence cannot be considered a virtue unless every other virtue, big or little, is present. It is otherwise only a vicious attribute.

In outward appearance, the bridge calls most importantly for visible assurance of strength and stability. To be entirely successful, it is not enough for the bridge to be functionally adequate within the exact knowledge of the engineer; it must proclaim itself so to the inexact instincts of the layman. It is pardonable park practice to venture well beyond sheer engineering perfection in the scaling of materials to stresses and strains, not alone in gesture to the lay concept of structural suffi-

ciency, but to satisfy the claims of comparative scale. Overemphasis of the structural elements of the bridge is usually necessary in order to maintain a good scale relationship with the natural elements of the more or less rugged landscape widely prevailing in park areas.

THE ATTAINMENT of "the little more" that is so desired by those who would have an eye-appeal scale brought to the slide rule is all too rare in park bridges. Rather is there a too prevalent flimsiness, ocular rather than structural. Considerably fewer bridges fail to satisfy by seeming too ponderous for their function.

Of perhaps equal importance is the choice of materials for the bridge. Only those which are native to the area and predominate near the bridge site will constitute a convincingly appropriate and harmonious medium of structural interpretation. While this applies, of course, to all structures in parks, it is particularly important to stone bridges, which in their most happily successful expressions seem almost to spring from the stream or river bank when truly related in color, texture, and scale to adjacent rock outcrops.

After wise choice of a native material, used in a sufficiency pleasing to the eye, the next demand to be made upon bridges would be for variety within reason, avoiding the commonplace at one extreme, and the fantastic at the other. The ranges of use, span, and height, and the broad fields of materials, arch and truss forms, local practices (to name a few variety-making possibilities) promise endless combinations and cross-combinations making for much individuality among bridges.

In general, bridges of stone or timber appear more indigenous to our natural parks than spans of steel or concrete, just as the reverse is probably true for bridges in urban locations or in connection with broad main highways. Probably there are few structures so discordant in a wilderness en-

vironment as bridges of exposed steel construction.

Too great "slickness" of masonry or timber technique, however, is certain to depreciate the merits of these materials for park bridges. Rugged and informal simplicity in use is the indisputable specification for their proper employment.

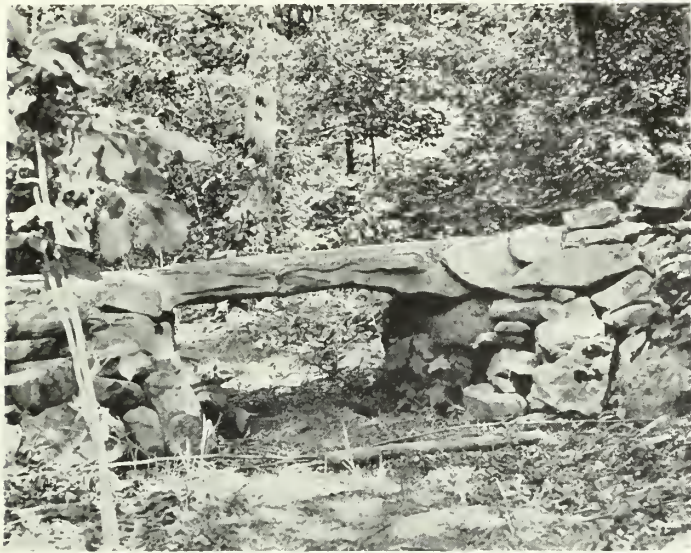
In no park structure more than in bridges is it of such importance to select a type of stone masonry construction that will reflect the natural formations in the immediate area and steer clear of the common errors in masonry. Shapeless stones laid up in the manner of mosaic are abhorrent in the extreme, having no precedent in Nature or in the traditions of sound masonry. In bridges particularly is there merit in pronounced horizontal coursing, breaking of vertical joints, variety in size of stones—all the principles productive of sound construction and pleasing appearance in any use of masonry. Often the creation of an effect that recalls any natural ledge stone formations in the vicinity is the indicated technique for the masonry of the bridge. The curve of the arch, the scale of the arch stones and masonry generally, the size of the pier, the height of the masonry above the crown of the arch are all factors vital to the success of the masonry bridge.

TIMBER BRIDGES may utilize either round or squared members to agreeable results. Squared timbers gain mightily in park character when hand-hewn. Simplicity of constructional pattern is a paramount consideration. It offers lesser contrast with natural elements, and is less distracting where competition between rigid artificial forms and free natural forms is an acknowledged taboo.

For practical as well as aesthetic reasons, bridges of open wood-truss type are in general disfavor. Arguments to their advantage seem to be lacking, whereas many are raised against them. When trusses are not structurally required, they are to be

condemned for complicating the design and obstructing the view. In spite of most careful detailing to prevent water entering and lying in the joints, this is hard to overcome entirely. Shrinking of the timbers, rack under impact and strain, and rot developing in the opening joints speed the deterioration of this type of construction. It is short-lived and soon unsafe. It was practical effort to overcome this inherent weakness of the open wood-truss bridge by sheltering the trusses from exposure to the weather that brought about the development of the old-time covered bridge.

Many an otherwise altogether satisfying bridge fails of complete success through careless disregard in the matter of finishing touches. These, in relation to total effect, are actually far from so trivial as the frequent neglect of them might indicate or the man-days they involve. The parapet, railing, or wing wall should not terminate abruptly as though content with a mere toe-hold on the abutment, but should carry well back from the face of it to a very evidently sufficient bearing. Sometimes there is great merit in splaying the parapet or railing at the point of approach to a bridge, particularly if the bridge is narrow. Often the silhouette is much enhanced by stepping down, "easing" or "merging" parapet or railing into the grade at the terminals. Logical transition, convincing structurally, is desirable to relieve any abrupt change of materials in construction, especially in bridges that combine wood spans and stone piers. A similarly unpleasant and sharp transition sometimes occurs along the grade line of a bridge structure. A disturbing, unfinished, unassimilated appearance, noticeable in a number of the illustrations that follow, might have been dispelled by a mere warping of grade or bank slope, a suitable clean-up, and some cooperation with Nature to encourage the return of natural ground cover for the softening effect that is always its contribution.



Petit Jean State Park, Arkansas



Deception Pass State Park, Washington

MINOR FOOT AND HORSE TRAIL BRIDGES

Surrounding are bridges of the most elementary pattern, mere platform bridging an obstacle, a type termed in France a passerelle. Enhanced by a sylvan setting, the casual simplicity of these seems the concordant note for a narrow trail in a wilderness tract, wherein a narrow and shallow brook is hardly an obstacle to call for protective curb or handrail. The example with low curbs shown at lower left is transitional between this group and that shown on following page.



Denver Mountain Parks, Colorado



Sequoia National Park



Parvin State Park, New Jersey



Deception Pass State Park, Washington



Prairie Creek State Park, California



Great Smoky Mountains National Park

MINOR FOOT BRIDGES WITH SINGLE HANDRAIL

Greater hazard in the obstacle to be crossed is met by the foot bridge with a single handrail. Each example here shown has distinct individuality. The Prairie Creek representative is two fallen redwood trees, one dressed on top to provide level walking surface, the other, still sending off living shoots, serving as picturesque guard on the off-handrail side. Equally novel are the bridge that changes handrails in the middle of the stream, the colloquial cantilever example in Great Smoky Mountains, and the stairway bridge in Moran State Park, notched from a fallen tree.



Grand Teton National Park



Moran State Park, Washington



Turner Falls State Park, Oklahoma



Custer State Park, South Dakota

FOOT BRIDGES WITH HANDRAIL AND CURB

On this page will be noted a vigorous scale which is at once the common bond between the five examples shown and the main point of difference between this group and that shown on the facing page. Another common factor is the employment of a handrail on one side and a curb on the other—the latter a mere log in every example save that at lower left where there is evidence of a developing second handrail. This promise becomes a fact in the bridges of the next group.



Loveland Mountain Metropolitan Park, Colorado



Humbug Mountain State Park, Oregon



Devil's Den State Park, Arkansas



Wildcat Hills Game Reserve, Nebraska

FOOT BRIDGES WITH TWO HANDRAILS

We put our best foot bridge forward in this initial bursting into a half-page cut of a bridge and stoutly deny that we are victimized by the artful maneuvering of a clever photographer. After faithful editorial effort to discount the unfair advantage this conscienceless fellow has heaped on it, the bridge still seems to rate as a bull's-eye for those who designed and executed it.

Pleasing overscale, the subtle camber of the handrails, logical interrelation of the sizes of the various timbers, the exaggerated rake of the outrigger braces—all add up to a score that is impressive. The reader is implored to see only the good and to go along with us in being blind to the inferior masonry of the abutment. This

feature certainly cannot be recommended to serve as a model.

All the bridges illustrated on these facing pages comprise a related group. There is great variation in scale ranging between the pudgy example at upper left and the rather attenuated construction of the bridge at lower right. The former is so very ample for performing its obviously light task that it may seem ridiculous to plead that the diagonal handrail braces (which might have been omitted altogether with logic) should have taken the other diagonal and made a pretense at functioning.

It should be noted that outrigger construction for bracing the railings, hardly encountered up to this page, here becomes almost the rule.



Custer State Park, South Dakota



Saratoga Hot Springs State Park, Wyoming



Lake Guernsey State Park, Wyoming



Alderwood State Park, Oregon



Devil's Den State Park, Arkansas



Savoy State Forest Park, Massachusetts



Great Smoky Mountains National Park

FOOT AND HORSE TRAIL BRIDGES IN VARIETY

In the scale of the bridge shown above there is happily present that visible assurance of adequate strength so strongly urged for park bridges. The suggestion of invitation with which the splayed approach invests the narrow foot bridge is here well exemplified.

As a group the bridges on the facing page are not so well integrated as the group just reviewed. Individuality is more the note. Only the bridge at Crater Lake National Park is comparable in sturdiness with the bridge shown above. A bridge of the left hand column of the facing page, an example in Parvin State Park, borrows the graceful and pleasing crown or segmental arch form

characteristic of oriental garden bridges. The bridge in Clifty Falls State Park brings on the scene for the first time squared timber members, and this bridge and the Wind Cave National Park subject illustrate the possibilities for extending the masonry abutment of a wood span bridge to the height of the railing. Both also show a sophisticated and careful masonry construction that has not appeared in any of the bridges shown up to this point. Such masonry is more typical of large bridges. The somewhat elaborate rail pattern of the Scenic State Park bridge is more at home in its birch thicket setting than it would be either among larger trees or in the open.



Parvin State Park, New Jersey



Crater Lake National Park



Parvin State Park, New Jersey



Scenic State Park, Minnesota



Clifty Falls State Park, Indiana



Wind Cave National Park



Fort Collins Mountain Metropolitan Park, Colorado

TIMBER FOOT BRIDGES OF MULTIPLE SPAN

In the examples shown on these pages, stone piers in support of the bridge spans appear almost to be the rule, with but one bridge employing wood for the purpose. This exception does not prove the rule, however, for there are possibilities in wood bents and log cribbing to bring greater variety to multiple span foot and horse trail bridges than is manifested here. The multiple span vehicle bridges later shown give proof of this.

The Crowley's Ridge State Park and the Ponca Lake Metropolitan Park bridges illustrate the results that can obtain when the terminations of the handrails are "brought to ground." Such satisfying features as ample bearing, firm anchorage, and

exaggerated crown sum up to a total effect that is at once suggestive of strength and of skillful adaptation to site.

The superiority—practical, logical, and aesthetic—of a considerable batter to masonry bridge piers may be readily appreciated by a close study of this series. Noteworthy for this important feature are the examples from Colorado, Oklahoma, and Wyoming here pictured. Likewise does this group afford a suitable opportunity for appraising the merits of outrigger bracing and of the scale of individual wood members in relation to adjoining parts, to length of span, and to length of the bridge itself.



Crowley's Ridge State Park, Arkansas



Yosemite National Park



South Mountain Reservation, New Jersey



Saratoga Hot Springs State Park, Wyoming



Ponca Lake Metropolitan Park, Ponca, Oklahoma



Ledges State Park, Iowa



New Salem State Park, Illinois

FOOT AND HORSE TRAIL BRIDGES

A common denominator of this aggregation of bridges is squared timber members. These may be smooth-dressed, rough-sawn, or hewn and dressed with axe or adze. The aesthetic value of an axe- or adze-dressed surface is hardly apparent in a photograph, but the quality such surfaces bring to park construction is quickly sensed when observed in the actual. The two New Jersey bridges benefit greatly from hewn surfaces.

The bridge at New Salem State Park, wherein is a reconstructed pioneer village, seeks and achieves a primitive quality related well to its surroundings by virtue of hand-split rails and hand-hewn posts, smoothed of all sharp edges to a convincing simulation of great age and long weathering.

The crown or camber of the vigorous bridge at Whitewater State Park, Minnesota, seems in very proper amount and contributes, along with the sensibly trussed rail pattern, to the eye-appeal of this bridge.

Common to the bridges of the outer column of the facing page is the slender, segmental arch form. In Illinois this is usually of laminated wood, occasionally of reinforced concrete with the offhand appearance of wood. The Rock Creek Park bridge is frankly concrete. There is a soaring grace about bridges of this profile that is very appealing. Large suspension bridges have made the profile familiar to us in this usage, and a present day streamline-mindedness must on occasion be served.



Cooper River Parkway, New Jersey



Gebhards Woods, I. & M. Canal State Park, Illinois



Egg Harbor River Parkway, New Jersey



White Pine Forest State Park, Illinois



Whitewater State Park, Minnesota



Rock Creek Park, Washington, D. C.



Custer State Park, South Dakota

MINOR VEHICLE BRIDGES

At this point the bridge comes of age and accommodates vehicles. Once again in the choice of the key illustration of this group, a clever photographer is suspect of having played friend-at-court, although it is contended the bridge has real merit on its own. The graceful birch may artfully mask formless masonry abutments but the wood span—its braces, railing members, outriggers—all appear of pleasing proportion in an attractive pattern.

On the facing page is illustrated the development of the vehicle bridge, from vehicular equivalent (at upper right) of the passercelle which ushered in

foot bridges, to the full-fledged bridges at the bottom of the page, having abutments that grow into approaches. There is an appealing, humorous quality about the little bridge at Goose Island State Park, Texas—Mother Goose is the name for it. As the illustrations well disclose, the droughts of recent years have made it difficult to obtain photographs of some bridges in any convincing relationship to the obstacles involved. This is especially noticeable in this series and should not be held in disparagement of these bridges in the light of more normal function.



Roosevelt Regional State Park, North Dakota



Goose Island State Park, Texas



Letchworth State Park, New York



Lewis and Clark State Park, Washington



Osage Hills State Park, Oklahoma



Mohawk Metropolitan Park, Tulsa, Oklahoma

*Sequoia National Park*

WOOD SPAN VEHICLE BRIDGES

There is in the bridge above-illustrated a robustness of scale that qualifies it for preeminence among the examples shown on these facing pages. The positional as well as the scale relationship between the posts of the railings and the log girders, and the great size of the latter members conspire to produce a bridge extraordinarily harmonious with the boulder-strewn creek and the wilderness setting.

Facing are vehicle bridges which in the left column employ round timbers and in the right column squared timbers. The bridge at upper left is very

much the bridge above in miniature, and retains its heroic scale. Note in the bridge just below it that the abutment constructed of log cribbing makes its entrance on the scene.

In the trio of bridges of squared timbers we have the grade-high abutment at the top, next it extends half the height of the rail, and finally to the full height of the rail and steps down to grade on the approach side. The refinements of axc- or adzed surfaces and of wood-pegged connections appear in these bridges.



Bandelier National Monument



I & M Canal State Park, Illinois



Yellowstone National Park



Cook County Forest Preserve, Illinois



Lassen Volcanic National Park



Spring Mill State Park, Indiana



Margaret Lewis Norrie State Park, New York

MINOR VEHICLE BRIDGES OF MASONRY

The masonry arch bridge offers variety by reason of the many arch profiles, stone colors and textures, and masonry techniques it is possible to employ. The proportion between length of arch stones and span of arch is an always important consideration. An arch that appears inadequate to support the bridge is a major aesthetic blunder, even though the roadway is actually carried by a concrete construction for which the stone wall is merely a surfacing.

The arch of the example above has in satisfying degree that look of being competent to perform its job, as have also the arches of the Texas bridges at the bottom of the facing page. In the others it exists in lesser degree. The Missouri bridge waives this consideration aside as unimportant, and brazenly "tells all" about modern bridge construc-

tion by choosing to substitute an arch fillet of concrete for any mere vestige of a true stone arch.

There is informality in a stepped silhouette for the parapet wall of park bridges, as at Lockhart and Longhorn Cavern State Parks, which is held to be in better "park character" than any use of a thin, projecting, and more formal cap stone.

The little masonry bridge in Dutchess County, New York, shown as tailpiece illustration on page 8, belongs in the group shown here. If the information regarding this bridge is accurate, it is passed along with embarrassment, for it is said to be an ancient structure—not consciously created for its superlative park character. Achievement will be considerable, when, purposing to build park bridges of distinction, actual accomplishment in equivalent degree is more the rule.



October Mountain State Forest Park, Massachusetts



Bennett Springs State Park, Missouri



Canyon Park, Oklahoma City, Oklahoma



Wintersmith Metropolitan Park, Ada, Oklahoma



Lockhart State Park, Texas



Longhorn Cavern State Park, Texas



Enfield Glen State Park, New York

LARGER STONE VEHICLE BRIDGES

Unfortunate among larger stone arch bridges is a tendency to a thin and structurally weak appearance at the crown of the arch. Even the appointed of this group shown above suffers slightly from this occupational defect. So also does the Arbuckle Trail, Oklahoma, bridge although not actually a long span. It is more conspicuously present in many otherwise pleasing and graceful park bridges that are not here illustrated, and for that reason.

As the length of stone arch increases, it of course follows that it is increasingly difficult to maintain the same arch-stones-to-arch-span proportion we admire in the smaller arch bridge. We do not then bay the moon but adapt our standards of judgment

in this regard to the limits of the possible. The arch stones of the bridge in Zion National Park seem happily sealed to the size of the arch.

Among this group are shown a variety of stone patterns and techniques and a varying merit. In an age when the carrying arch is almost invariably of concrete, and the stone sidewalls and their vestigial arches are mere veneer, it is thrilling to observe that the stone arch of the McCormick's Creek bridge is functional, carrying through the width of the bridge. The disillusionment when a veneer-arch barely turns the corner to give way to a characterless concrete surface comes always as something of a shock.



Cheaha State Park, Alabama



Arbuckle Trail, Oklahoma



Yellowstone National Park



Zion National Park



McCormick's Creek State Park, Indiana



Watkins Glen State Park, New York



Devil's Den State Park, Arkansas

VEHICLE BRIDGES OF MULTIPLE WOOD SPAN

The conditions indicating a bridge construction as a succession of wood spans are usually a comparatively shallow declivity, a considerable distance between banks, and the absence of any necessity for maintaining a clear span. The highly interesting bridge on this page has greater height than any shown opposite, and the resulting lofty and massive piers are impressive. The observant will note that many otherwise well-executed bridges terminate too abruptly after gaining what often seems a precariously slight bearing on the bank or abutment. The Devil's Den bridge rolls magnificently and hospitably on to join hands with the guard rails of the transverse road construction with such unmistakable grace that it easily wins place as the key example of this group.

The bridges of the left column on the facing page are of log construction (except for the stone abutments of the one) and illustrate that the intermediate supports may be posts with bracing, bents, cribbing, or any of these in combination, as at Mohawk Trail State Forest Park, Massachusetts.

The bridges shown in the outer column opposite employ intermediate piers of masonry. The bridge at the top has floor construction of wood, and the next below, steel and concrete masked by log stringers. At the bottom will be seen a bridge of concrete floor construction undisguised, supported on stone piers and abutments, and utilizing log handrails—a combination of modern and time-honored materials and methods that is both reasonable and forthright.



Levi Jackson-Wilderness Road State Park, Kentucky



Giant City State Park, Illinois



Mohawk Trail State Forest Park, Massachusetts



Backbone State Park, Iowa



Yellowstone National Park



Yellowstone National Park



Whitewater State Park, Minnesota

MULTIPLE ARCH AND SUSPENSION BRIDGES

Streamlining has not yet drummed the pleasing rhythm of the repeating arch form out of our consciousness. And when the melody is echoed in still waters as it is above, we are reassured that it will forever continue within the range of our appreciation.

A pitfall in the designing of the multiple arch stone bridge is insufficient mass in the piers. A tendency in this direction is noticeable in the bridge illustrated at the bottom of the left hand column opposite. Pleasing in the top example are the subtle crowning of the parapet silhouette and equally subtle splay of the terminals, so that these suggest rather than actually become wing walls. The arch stones of this double-arched example are very happily sealed and have a face-to-back thickness that

is not glaringly disclosing of the concrete inner construction.

The suspension constructions shown in the right hand column embrace two foot bridges, top and bottom, and a vehicle bridge at Mount Rainier National Park. The suspension bridge probably more than any other type will provoke controversy among the park-minded as to its fitness in a wilderness. There are those who will accept the log constructions and ban the type represented by the example at Jay Cooke State Park, and there are some who will approve, and others who will deplore, both types. Space here permits the showing of these bridges, but by great good fortune does not allow for comment or analysis disclosing of other than a neutral position regarding them.



Mount Vernon Memorial Highway



Rainbow Falls State Park, Washington



Cook County Forest Preserve, Illinois



Mount Rainier National Park



Bennett Springs State Park, Missouri



Jay Cooke State Park, Minnesota



Quartz Mountain State Park, Oklahoma



Roman Nose State Park, Oklahoma



Palmetto State Park, Texas

LOW WATER BRIDGES

Where terrain and other affecting conditions are such that the approach roads to the bridge and nearby streamside use areas are unusable during flood periods, it is purposeless to elevate the bridge above flood stage to a resulting awkward relationship with the terrain. In such locations the low water bridge has proper place. Predicated on frequent submersions by flood, this type of bridge calls for a rugged, "weighted" scale that gives unmistakable assurance of permanence.



Boyle Metropolitan Park, Little Rock, Arkansas



Boyle Metropolitan Park, Little Rock, Arkansas

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